



#21

## SEQUENCE LISTING

<110> Shimkets, Richard  
Fernandes, Elma  
Hermann, John  
Vernet, Corine

<120> Novel polynucleotides and polypeptides encoded thereby

<130> 15966-552

<140> 09/584,411

<141> 2000-05-31

<150> USSN 60/137,322

<151> 1999-06-03

<150> USSN 60/189,810

<151> 2000-03-16

<150> USSN 60/191,158

<151> 2000-03-22

<150> USSN 60/193,086

<151> 2000-03-30

<150> USSN 60/201,388

<151> 2000-05-03

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<170> PatentIn Ver. 2.0

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<222> (189)..(695)

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<223> Description of Artificial Sequence: chemically

synthesized

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gcggccgccca cctggagttt cttcagactc cagatttccc tgtcaaccac gaggagtcca 120

gagaggaac gggagcgga gacaacagta cctgacgcct ctttcagccc gggatcgccc 180

cagcaggg atg ggc gac aag atc tgg ctg ccc ttc ccc gtg ctc ctt ctg 230

Met Gly Asp Lys Ile Trp Leu Pro Phe Pro Val Leu Leu Leu

1

5

10

gcc gct ctg ctt cgg gtg ctg ctg cct ggg gcg gcc ggc ttc aca cct 278

Ala Ala Leu Leu Arg Val Leu Leu Pro Gly Ala Ala Gly Phe Thr Pro

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tcc ctc gat agc gac ttc acc ttt acc ctt ccc gcc ggc cag aag gag 326

Ser Leu Asp Ser Asp Phe Thr Phe Thr Leu Pro Ala Gly Gln Lys Glu

35

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tgc ttc tac cag ccc atg ccc ctg aag gcc tcg ctg gag atc gag tac 374

Cys Phe Tyr Gln Pro Met Pro Leu Lys Ala Ser Leu Glu Ile Glu Tyr

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caa gtt tta gat gga gca gga tta gat att gat ttc cat ctt acc tct 422

Gln Val Leu Asp Gly Ala Gly Leu Asp Ile Asp Phe His Leu Thr Ser

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70

75

cca gaa ggc aaa acc tta gtt ttt gaa caa aga aaa tca gat gga gtt 470

Pro Glu Gly Lys Thr Leu Val Phe Glu Gln Arg Lys Ser Asp Gly Val

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cac act gta gag act gaa gtt ggt gat tac atg ttc tgc ttt gac aat 518

His Thr Val Glu Thr Glu Val Gly Asp Tyr Met Phe Cys Phe Asp Asn



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Leu Leu Arg Val Leu Leu Pro Gly Ala Ala Gly Phe Thr Pro Ser Leu

20

25

30

Asp Ser Asp Phe Thr Phe Thr Leu Pro Ala Gly Gln Lys Glu Cys Phe

35

40

45

Tyr Gln Pro Met Pro Leu Lys Ala Ser Leu Glu Ile Glu Tyr Gln Val

50

55

60

DI Leu Asp Gly Ala Gly Leu Asp Ile Asp Phe His Leu Thr Ser Pro Glu

65

70

75

80

Gly Lys Thr Leu Val Phe Glu Gln Arg Lys Ser Asp Gly Val His Thr

85

90

95

Val Glu Thr Glu Val Gly Asp Tyr Met Phe Cys Phe Asp Asn Thr Phe

100

105

110

Ser Thr Ile Ser Glu Lys Val Ile Phe Phe Glu Leu Ile Leu Asp Asn

115

120

125

Met Gly Glu Gln Ala Gln Glu Gln Glu Asp Trp Lys Lys Tyr Ile Thr

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Gly Thr Asp Ile Leu Asp Met Lys Leu Glu Asp Ile Leu Asp Leu Pro



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Gly Arg Pro Leu Glu Pro Tyr Ser Glu

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cgacagactg aaggacagcg gcaccgccag acggccagaa agttccgcc atg agc tgg 118

Met Ser Trp

ggc acg gag ctg tgg gat cag ttc gac agc tta gac aag cat aca caa 166

Gly Thr Glu Leu Trp Asp Gln Phe Asp Ser Leu Asp Lys His Thr Gln

5

10

15

tgg gga att gac ttc ttg gaa aga tat gcc aaa ttt gtt aaa gag agg 214

Trp Gly Ile Asp Phe Leu Glu Arg Tyr Ala Lys Phe Val Lys Glu Arg

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25

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35

ata gaa att gaa cag aac tat gcg aaa caa ttg aga aat ctg gtt aag 262

Ile Glu Ile Glu Gln Asn Tyr Ala Lys Gln Leu Arg Asn Leu Val Lys

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45

50

aag tac tgc ccc aaa cgt tca tcc aaa gat gaa gag cca cgg ttt acc 310

Lys Tyr Cys Pro Lys Arg Ser Ser Lys Asp Glu Glu Pro Arg Phe Thr

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60

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tcg tgt gta gcc ttt ttt aat atc ctt aat gag tta aat gac tat gca 358

Ser Cys Val Ala Phe Phe Asn Ile Leu Asn Glu Leu Asn Asp Tyr Ala

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75

80

gga cag cga gaa gtt gta gca gaa gaa atg gcg cac aga gtg tat ggt 406

Gly Gln Arg Glu Val Val Ala Glu Glu Met Ala His Arg Val Tyr Gly

85

90

95

gaa tta atg aga cat gct cat gat ctg aaa act gaa aga aaa atg cat 454

Glu Leu Met Arg His Ala His Asp Leu Lys Thr Glu Arg Lys Met His

100

105

110

115

ctg caa gaa ggc cga aaa gct cac caa tct ctt gcc atg tgc tgg aac 502

Leu Gln Glu Gly Arg Lys Ala His Gln Ser Leu Ala Met Cys Trp Asn

120

125

130

cag atg gat aat agt aaa aag aag ttt gaa aga gaa tgt aga gag gca 550

Gln Met Asp Asn Ser Lys Lys Lys Phe Glu Arg Glu Cys Arg Glu Ala

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gaa aag gcc cac cag agt tat gaa aga ttg gat aat gat act aat gca 598

Glu Lys Ala His Gln Ser Tyr Glu Arg Leu Asp Asn Asp Thr Asn Ala

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acc aag gca gat gtt gaa aat gcc aaa cag cag ttg aat ctg cgt acg 646

Thr Lys Ala Asp Val Glu Asn Ala Lys Gln Gln Leu Asn Leu Arg Thr

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cat atg gcc gat gaa aat aaa aat gca tat gct gca caa tta caa aac 694

His Met Ala Asp Glu Asn Lys Asn Ala Tyr Ala Ala Gln Leu Gln Asn

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185

190

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ttt aat gga gaa caa cat aaa cat ttt tat gta gtg att cct cag att 742

Phe Asn Gly Glu Gln His Lys His Phe Tyr Val Val Ile Pro Gln Ile

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tac aag caa cta caa gaa atg gac gaa cga agg act att aaa ctc agt 790

Tyr Lys Gln Leu Gln Glu Met Asp Glu Arg Arg Thr Ile Lys Leu Ser

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gag tgt tac aga gga ttt gct gac tca gaa cgc aaa gtt att ccc atc 838

Glu Cys Tyr Arg Gly Phe Ala Asp Ser Glu Arg Lys Val Ile Pro Ile

230

235

240

att tca aaa tgt ttg gaa gga atg att ctt gca gca aaa tca gtt gat 886

Ile Ser Lys Cys Leu Glu Gly Met Ile Leu Ala Ala Lys Ser Val Asp

245

250

255

gaa aga aga gac tct caa atg gtg gta gac tcc ttc aaa tct ggt ttt 934

Glu Arg Arg Asp Ser Gln Met Val Val Asp Ser Phe Lys Ser Gly Phe

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gaa cct cca gga gac ttt cca ttt gaa gat tac agt caa cat ata tat 982

Glu Pro Pro Gly Asp Phe Pro Phe Glu Asp Tyr Ser Gln His Ile Tyr

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aga acc att tct gat ggg act atc agt gca tcc aaa cag gag agt ggg 1030

Arg Thr Ile Ser Asp Gly Thr Ile Ser Ala Ser Lys Gln Glu Ser Gly

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aag atg gat gcc aaa acc cca gta gga aag gcc aag ggc aaa ttg tgg 1078

Lys Met Asp Ala Lys Thr Pro Val Gly Lys Ala Lys Gly Lys Leu Trp

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ctc ttt gga aag aag cca aag ggc cca gca cta gaa gat ttc agt cat 1126

Leu Phe Gly Lys Lys Pro Lys Gly Pro Ala Leu Glu Asp Phe Ser His

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ctg cca cca gaa cag aga cgt aaa aaa cta cag cag cgc att gat gaa 1174  
 Leu Pro Pro Glu Gln Arg Arg Lys Lys Leu Gln Gln Arg Ile Asp Glu  
 340 345 350 355

ctt aac aga gaa cta cag aaa gaa tca gac caa aaa gat gca ctc aac 1222  
 Leu Asn Arg Glu Leu Gln Lys Glu Ser Asp Gln Lys Asp Ala Leu Asn  
 360 365 370

aaa atg aaa gat gta tat gag aag gat cca caa atg ggg gat cca ggg 1270  
 Lys Met Lys Asp Val Tyr Glu Lys Asp Pro Gln Met Gly Asp Pro Gly  
 375 380 385

DI agt ttg cag cct aaa tta gca gag acc atg aat aac att gac cgc cta 1318  
 Ser Leu Gln Pro Lys Leu Ala Glu Thr Met Asn Asn Ile Asp Arg Leu  
 390 395 400

cga atg gaa atc cat aag aat gag gct tgg ctc tct gaa gtc gaa ggc 1366  
 Arg Met Glu Ile His Lys Asn Glu Ala Trp Leu Ser Glu Val Glu Gly  
 405 410 415

aaa aca ggt ggg aga gga gac aga aga cat agc agt gac ata aat cat 1414  
 Lys Thr Gly Gly Arg Gly Asp Arg Arg His Ser Ser Asp Ile Asn His  
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ctt gta aca cag gga cga gaa agt cct gag gga agt tac act gat gat 1462  
 Leu Val Thr Gln Gly Arg Glu Ser Pro Glu Gly Ser Tyr Thr Asp Asp  
 440 445 450

gca aac cag gaa gtc cgt ggg cca ccc cag cag cat ggt cac cac aat 1510  
Ala Asn Gln Glu Val Arg Gly Pro Pro Gln Gln His Gly His His Asn

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gag ttt gat gat gaa ttt gag gat gat gat ccc ttg cct gct att gga 1558  
Glu Phe Asp Asp Glu Phe Glu Asp Asp Asp Pro Leu Pro Ala Ile Gly

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cac tgc aaa gct atc tac cct ttt gat gga cat aat gaa ggt act cta 1606  
His Cys Lys Ala Ile Tyr Pro Phe Asp Gly His Asn Glu Gly Thr Leu

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DI gca atg aaa gaa ggt gaa gtt ctc tac att ata gag gag gac aaa ggt 1654  
Ala Met Lys Glu Gly Glu Val Leu Tyr Ile Ile Glu Glu Asp Lys Gly

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515

gac gga tgg aca aga gct cgg aga cag aac ggt gaa gaa ggc tac gtt 1702  
Asp Gly Trp Thr Arg Ala Arg Arg Gln Asn Gly Glu Glu Gly Tyr Val

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525

530

ccc acg tca tac ata gat gta act cta gag aaa aac agt aaa ggt tcc 1750  
Pro Thr Ser Tyr Ile Asp Val Thr Leu Glu Lys Asn Ser Lys Gly Ser

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540

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tgaagagggt ttctgaggaa atgggcaaga tggtgaagga gggtacatgc agctgctttt 1810

gggggagggt attagagttg tcaggctcaa agagagtgag agaagcaagt tgcagagtg 1870

catgcagaca tgattttttt ttactaact tcattagcat ttccatacat tgttttttaa 1930

aatcataata ccaaccctta agttcctagt tcacagttat tcccacaaaa gaaaaagcca 1990

acaatagtgt accatttttc tattttattt tattgctgtc taatcaataa agaatgcaga 2050

gctgtcaaaa aatgtgtctt acatttagct gtcccaacag gattgtcttc cctcccagct 2110

ctgggttttaa ttggctttta gaccactat ctgtcagatc cttgccatct gtcagtgtct 2170

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attttcaggc atgtcttttag aatccctcgg tncgtgcaaa gcctgggttg gtttacattg 2290

gtngtgcaat cncctttgtca acatctccag cactatngtt cctctctagg tn 2342

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<213> Homo sapiens

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1

5

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15

His Thr Gln Trp Gly Ile Asp Phe Leu Glu Arg Tyr Ala Lys Phe Val

20

25

30

Lys Glu Arg Ile Glu Ile Glu Gln Asn Tyr Ala Lys Gln Leu Arg Asn

35

40

45

Leu Val Lys Lys Tyr Cys Pro Lys Arg Ser Ser Lys Asp Glu Glu Pro

50

55

60

Arg Phe Thr Ser Cys Val Ala Phe Phe Asn Ile Leu Asn Glu Leu Asn  
65 70 75 80

Asp Tyr Ala Gly Gln Arg Glu Val Val Ala Glu Glu Met Ala His Arg  
85 90 95

Val Tyr Gly Glu Leu Met Arg His Ala His Asp Leu Lys Thr Glu Arg  
100 105 110

Lys Met His Leu Gln Glu Gly Arg Lys Ala His Gln Ser Leu Ala Met  
115 120 125

DI Cys Trp Asn Gln Met Asp Asn Ser Lys Lys Lys Phe Glu Arg Glu Cys  
130 135 140

Arg Glu Ala Glu Lys Ala His Gln Ser Tyr Glu Arg Leu Asp Asn Asp  
145 150 155 160

Thr Asn Ala Thr Lys Ala Asp Val Glu Asn Ala Lys Gln Gln Leu Asn  
165 170 175

Leu Arg Thr His Met Ala Asp Glu Asn Lys Asn Ala Tyr Ala Ala Gln  
180 185 190

Leu Gln Asn Phe Asn Gly Glu Gln His Lys His Phe Tyr Val Val Ile  
195 200 205



Pro Gln Ile Tyr Lys Gln Leu Gln Glu Met Asp Glu Arg Arg Thr Ile  
210 215 220

Lys Leu Ser Glu Cys Tyr Arg Gly Phe Ala Asp Ser Glu Arg Lys Val  
225 230 235 240

Ile Pro Ile Ile Ser Lys Cys Leu Glu Gly Met Ile Leu Ala Ala Lys  
245 250 255

Ser Val Asp Glu Arg Arg Asp Ser Gln Met Val Val Asp Ser Phe Lys  
260 265 270

DI Ser Gly Phe Glu Pro Pro Gly Asp Phe Pro Phe Glu Asp Tyr Ser Gln  
275 280 285

His Ile Tyr Arg Thr Ile Ser Asp Gly Thr Ile Ser Ala Ser Lys Gln  
290 295 300

Glu Ser Gly Lys Met Asp Ala Lys Thr Pro Val Gly Lys Ala Lys Gly  
305 310 315 320

Lys Leu Trp Leu Phe Gly Lys Lys Pro Lys Gly Pro Ala Leu Glu Asp  
325 330 335

Phe Ser His Leu Pro Pro Glu Gln Arg Arg Lys Lys Leu Gln Gln Arg  
340 345 350

Ile Asp Glu Leu Asn Arg Glu Leu Gln Lys Glu Ser Asp Gln Lys Asp  
355 360 365

Ala Leu Asn Lys Met Lys Asp Val Tyr Glu Lys Asp Pro Gln Met Gly

370

375

380

Asp Pro Gly Ser Leu Gln Pro Lys Leu Ala Glu Thr Met Asn Asn Ile

385

390

395

400

Asp Arg Leu Arg Met Glu Ile His Lys Asn Glu Ala Trp Leu Ser Glu

405

410

415

Val Glu Gly Lys Thr Gly Gly Arg Gly Asp Arg Arg His Ser Ser Asp

420

425

430

Ile Asn His Leu Val Thr Gln Gly Arg Glu Ser Pro Glu Gly Ser Tyr

435

440

445

Thr Asp Asp Ala Asn Gln Glu Val Arg Gly Pro Pro Gln Gln His Gly

450

455

460

His His Asn Glu Phe Asp Asp Glu Phe Glu Asp Asp Asp Pro Leu Pro

465

470

475

480

Ala Ile Gly His Cys Lys Ala Ile Tyr Pro Phe Asp Gly His Asn Glu

485

490

495

Gly Thr Leu Ala Met Lys Glu Gly Glu Val Leu Tyr Ile Ile Glu Glu

500

505

510

Asp Lys Gly Asp Gly Trp Thr Arg Ala Arg Arg Gln Asn Gly Glu Glu

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Gly Tyr Val Pro Thr Ser Tyr Ile Asp Val Thr Leu Glu Lys Asn Ser

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Lys Gly Ser

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<213> Homo sapiens

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acgtgcctc ctgcctgcag cc atg acg ccc tgc tca cct gat ctg gtg gtc 172

Met Thr Pro Cys Ser Pro Asp Leu Val Val

1

5

10

ctc atg ggc tta cct ctg gcc cag gcc ttg gac tgc cac gtg tgt gcc 220

Leu Met Gly Leu Pro Leu Ala Gln Ala Leu Asp Cys His Val Cys Ala

15

20

25

tac aac gga gac aac tgc ttc aac ccc atg cgc tgc ccg gct atg gtt 268

Tyr Asn Gly Asp Asn Cys Phe Asn Pro Met Arg Cys Pro Ala Met Val

30

35

40

gcc tac tgc atg acc acg cgc acc tac tac acc ccc acc agg atg aag 316

Ala Tyr Cys Met Thr Thr Arg Thr Tyr Tyr Thr Pro Thr Arg Met Lys

45

50

55

gtc agt aag tcc tgc gtg ccc cgc tgc ttc gag act gtg tat gat ggc 364

Val Ser Lys Ser Cys Val Pro Arg Cys Phe Glu Thr Val Tyr Asp Gly

60

65

70

tac tcc aag cac gcg tcc acc acc tcc tgc tgc cag tac gac ctc tgc 412

Tyr Ser Lys His Ala Ser Thr Thr Ser Cys Cys Gln Tyr Asp Leu Cys

75

80

85

90

DI aac ggc acc ggc ctt gcc acc ccg gcc acc ctg gcc ctg gcc ccc atc 460

Asn Gly Thr Gly Leu Ala Thr Pro Ala Thr Leu Ala Leu Ala Pro Ile

95

100

105

ctc ctg gcc acc ctc tgg ggt ctc ctc taaagccccc gaggcagacc 507

Leu Leu Ala Thr Leu Trp Gly Leu Leu

110

115

cactcaagaa caaagctctc gagacacact gctacaccct cgcacccagc tcaccctgcc 567

tcaccctcca cactccctgc gacctcctca gccatgccca gggtcaggac tgtgggcaag 627

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711

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<213> Homo sapiens

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20 25 30

Phe Asn Pro Met Arg Cys Pro Ala Met Val Ala Tyr Cys Met Thr Thr

35 40 45

DI Arg Thr Tyr Tyr Thr Pro Thr Arg Met Lys Val Ser Lys Ser Cys Val

50 55 60

Pro Arg Cys Phe Glu Thr Val Tyr Asp Gly Tyr Ser Lys His Ala Ser

65 70 75 80

Thr Thr Ser Cys Cys Gln Tyr Asp Leu Cys Asn Gly Thr Gly Leu Ala

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Thr Pro Ala Thr Leu Ala Leu Ala Pro Ile Leu Leu Ala Thr Leu Trp

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Gly Leu Leu

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cctgaagaca tcattgtcac cacctccaaa caaaccaaca tcgaggtgcg gggctgagaa 180

agctggcggc tgaacggaca ctgtacatga aacaccttac gactacacaa gtgccagact 240

gccggaggac gtggaccccg agcgtgcggt gacctcggct actgtcggga ggacggacag 300

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cgtcacttaa tccagagtac aggggctggg gtcagggaag gaagatctaa agaaccact 660

gtgggtcagg ggaatgggac cagcaggaca tatgggcaag ctctgcagga cagacagaca 720

gacaaaccct ctgatctatg aagtctctgc agggcaaggg gaccaggagc ctggaaccct 780

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tggaaactaat tgcccagagg ctcagcaagg ccaagaggag acagccgtga cggtaaactt 900

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ccagccagct ggctgtgccca gggcagagcc atg cca cat ctg tat ata gat ggg 1014

Met Pro His Leu Tyr Ile Asp Gly

gtt ttt cca ata cag ctg gtt cgt gaa aaa ctg cat gaa act cct gcc 1062

Val Phe Pro Ile Gln Leu Val Arg Glu Lys Leu His Glu Thr Pro Ala

10

15

20

gtc ctg cgc ctg ctg ggg cct cca ggc aag gcc aag tgg ggt tgg ggg 1110

Val Leu Arg Leu Leu Gly Pro Pro Gly Lys Ala Lys Trp Gly Trp Gly

25

30

35

40

tgg ggc tgg tcc ttc tcc ctc cca cag gcc tgt gtt cnt ggg gct gct 1158

Trp Gly Trp Ser Phe Ser Leu Pro Gln Ala Cys Val Xaa Gly Ala Ala

45

50

55

ccc atg cag aca gga tca cct aac aga gat gga agc cag ggc atg gat 1206

Pro Met Gln Thr Gly Ser Pro Asn Arg Asp Gly Ser Gln Gly Met Asp

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65

70

ggg gct ttg ggt cct cga ggt tgg acc cca gct tct tgc cac ctt ccc 1254

Gly Ala Leu Gly Pro Arg Gly Trp Thr Pro Ala Ser Cys His Leu Pro

75

80

85

ctc cgg cag tca gct ctc cat cca tcc ccc tct tta atc tat gaa tct 1302

Leu Arg Gln Ser Ala Leu His Pro Ser Pro Ser Leu Ile Tyr Glu Ser

90

95

100

ata ggc tcg gtg tgt gta aca aca cac ccc tat cgt tgt cct tca aat 1350

Ile Gly Ser Val Cys Val Thr Thr His Pro Tyr Arg Cys Pro Ser Asn

105

110

115

120



act cag cat tac cat tgg ttg agg cca aat tca gag ctt tct caa atc 1398

Thr Gln His Tyr His Trp Leu Arg Pro Asn Ser Glu Leu Ser Gln Ile

125

130

135

aga ttt aca atc tcc att ttc att aac ggg gaa aca tcc ccg agc cac 1446

Arg Phe Thr Ile Ser Ile Phe Ile Asn Gly Glu Thr Ser Pro Ser His

140

145

150

tgagtgtgt gctttgtcac tgaaggtag atctgaaccc aggggtgtcaa cngctgtct 1506

caactcccca cctctgggca ctgaggagta tttccctca ttctacctct ctaaggctat 1566

gcacccctcc ccacgtcttc cagctggggg atggggggag tcataggaaa agccccatc 1626

tcccatctgg gatagggacc ttccatcagc cttaacctg ggaaatgcct gctgccccca 1686

gtgactcttg gtttcgtctc ccacatacag aagcagggtg gaggggaagg gtgggtctca 1746

gttagcaggg gtccccaggg caagtcagcc tcctccctcc atgcctctct ggtcagtgtg 1806

ccttaggggtg gcctctcact ccaccactc tgggcccttg ggggaggact ggggaggggg 1866

ccgtgggaga gccctgacgc tggaacctgt atacacaata aaggacagtc tcacagacnt 1926

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a

1987

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<220>  
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<222> (53)  
<223> where Xaa can any amino acid

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Glu Lys Leu His Glu Thr Pro Ala Val Leu Arg Leu Leu Gly Pro Pro

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Gly Lys Ala Lys Trp Gly Trp Gly Trp Gly Trp Ser Phe Ser Leu Pro

35 40 45

Gln Ala Cys Val Xaa Gly Ala Ala Pro Met Gln Thr Gly Ser Pro Asn

50 55 60

Arg Asp Gly Ser Gln Gly Met Asp Gly Ala Leu Gly Pro Arg Gly Trp

65 70 75 80

Thr Pro Ala Ser Cys His Leu Pro Leu Arg Gln Ser Ala Leu His Pro

85 90 95

Ser Pro Ser Leu Ile Tyr Glu Ser Ile Gly Ser Val Cys Val Thr Thr

100 105 110

His Pro Tyr Arg Cys Pro Ser Asn Thr Gln His Tyr His Trp Leu Arg

115 120 125

Pro Asn Ser Glu Leu Ser Gln Ile Arg Phe Thr Ile Ser Ile Phe Ile

130

135

140

Asn Gly Glu Thr Ser Pro Ser His

145

150

<210> 9

<211> 1395

<212> DNA

<213> Homo sapiens

<220>

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<222> (587) .. (1342)

<220>

<221> variation

<222> (64)

<223> where n can be any nucleotide

<220>

<221> variation

<222> (65)

<223> where n can be any nucleotide

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tgcnngtgtg tgtgtggttg gcaggcctag tgatcctggt gtttagtgtc tctgagattt 120

gagttgtgcc tttttacttt gcataaagta gatacttggc catatgtagt tccaaggaga 180

agtcagagtt ccacctttgg agtctttcct tctgattcac gattttcttt caacaatttt 240

ccacttagga atccatcaca aaagttttgc acatgctcta cggaaacttc tgctgtgggc 300

agtgatatccc actcgtcatc tagagtctgg taaattgcc aagctggcag ttgagactcc 360

tttagtttga aaaatgatat caccttccca tttcttttca taccactgtc caccagaata 420

aagagaatct tcccctggaa gagcttggct gccttctggt atctgtgcat gttctctcca 480

tactctgggg aggccttggt cattatcagg aggagatgat tctgaattac gctgttgaat 540

aacccaatca cagtcacagg gttggagcag gagcaggaga gggaca atg gaa gct 595

Met Glu Ala

1

gcc ccg tcc agg ttc atg ttc ctc tta ttt ctc ctc acg tgt gag ctg 643

Ala Pro Ser Arg Phe Met Phe Leu Leu Phe Leu Leu Thr Cys Glu Leu

5

10

15

D1 gct gca gaa gtt gct gca gaa gtt gag aaa tcc tca gat ggt cct ggt 691

Ala Ala Glu Val Ala Ala Glu Val Glu Lys Ser Ser Asp Gly Pro Gly

20

25

30

35

gct gcc cag gaa ccc acg tgg ctc aca gat gtc cca gct gcc atg gaa 739

Ala Ala Gln Glu Pro Thr Trp Leu Thr Asp Val Pro Ala Ala Met Glu

40

45

50

ttc att gct gcc act gag gtg gct gtc ata ggc ttc ttc cag gat tta 787

Phe Ile Ala Ala Thr Glu Val Ala Val Ile Gly Phe Phe Gln Asp Leu

55

60

65

gaa ata cca gca gtg ccc ata ctc cat agc atg gtg caa aaa ttc cca 835

Glu Ile Pro Ala Val Pro Ile Leu His Ser Met Val Gln Lys Phe Pro

70

75

80

ggc gtg tca ttt ggg atc agc act gat tct gag gtt ctg aca cac tac 883

Gly Val Ser Phe Gly Ile Ser Thr Asp Ser Glu Val Leu Thr His Tyr

85

90

95

aac atc act ggg aac acc atc tgc ctc ttt cgc ctg gta gac aat gaa 931

Asn Ile Thr Gly Asn Thr Ile Cys Leu Phe Arg Leu Val Asp Asn Glu

100

105

110

115

caa ctg aat tta gag gac gaa gac att gaa agc att gat gcc acc aaa 979

Gln Leu Asn Leu Glu Asp Glu Asp Ile Glu Ser Ile Asp Ala Thr Lys

120

125

130

DI ttg agc cgt ttc att gag atc aac agc ctc cac atg gtg aca gag tac 1027

Leu Ser Arg Phe Ile Glu Ile Asn Ser Leu His Met Val Thr Glu Tyr

135

140

145

aac cct gtg act gtg att ggg tta ttc aac agc gta att cag att cat 1075

Asn Pro Val Thr Val Ile Gly Leu Phe Asn Ser Val Ile Gln Ile His

150

155

160

ctc ctc ctg ata atg aac aag gcc tcc cca gag tat gaa gag aac atg 1123

Leu Leu Leu Ile Met Asn Lys Ala Ser Pro Glu Tyr Glu Glu Asn Met

165

170

175

cac aga tac cag aag gca gcc aag ctc ttc cag ggg aag att ctc ttt 1171

His Arg Tyr Gln Lys Ala Ala Lys Leu Phe Gln Gly Lys Ile Leu Phe

180

185

190

195

att ctg gtg gac agt ggt atg aaa gaa aat ggg aag gtg ata tca ttt 1219

Ile Leu Val Asp Ser Gly Met Lys Glu Asn Gly Lys Val Ile Ser Phe

200

205

210

ttc aaa cta aag gag tct cga ctg cca gct ttg gga att tac cag act 1267

Phe Lys Leu Lys Glu Ser Arg Leu Pro Ala Leu Gly Ile Tyr Gln Thr

215

220

225

cta gat gac gag tgg gat aca ctg ccc aca gca gaa gtt tcc gta gag 1315

Leu Asp Asp Glu Trp Asp Thr Leu Pro Thr Ala Glu Val Ser Val Glu

230

235

240

cat gtg caa aac ttt tgt gat gga ttc taagtgggaa attgttgaaa 1362

His Val Gln Asn Phe Cys Asp Gly Phe

245

250

gaaaatcgtg aatcaggaag ggggaaaagg gac 1395

<210> 10

<211> 252

<212> PRT

<213> Homo sapiens

<400> 10

Met Glu Ala Ala Pro Ser Arg Phe Met Phe Leu Leu Phe Leu Leu Thr

1

5

10

15

Cys Glu Leu Ala Ala Glu Val Ala Ala Glu Val Glu Lys Ser Ser Asp

20

25

30

Gly Pro Gly Ala Ala Gln Glu Pro Thr Trp Leu Thr Asp Val Pro Ala

35                                      40                                      45  
 Ala Met Glu Phe Ile Ala Ala Thr Glu Val Ala Val Ile Gly Phe Phe  
 50                                      55                                      60  
 Gln Asp Leu Glu Ile Pro Ala Val Pro Ile Leu His Ser Met Val Gln  
 65                                      70                                      75                                      80  
 Lys Phe Pro Gly Val Ser Phe Gly Ile Ser Thr Asp Ser Glu Val Leu  
 85                                      90                                      95  
 Thr His Tyr Asn Ile Thr Gly Asn Thr Ile Cys Leu Phe Arg Leu Val  
 100                                      105                                      110  
 Asp Asn Glu Gln Leu Asn Leu Glu Asp Glu Asp Ile Glu Ser Ile Asp  
 115                                      120                                      125  
 Ala Thr Lys Leu Ser Arg Phe Ile Glu Ile Asn Ser Leu His Met Val  
 130                                      135                                      140  
 Thr Glu Tyr Asn Pro Val Thr Val Ile Gly Leu Phe Asn Ser Val Ile  
 145                                      150                                      155                                      160  
 Gln Ile His Leu Leu Leu Ile Met Asn Lys Ala Ser Pro Glu Tyr Glu  
 165                                      170                                      175  
 Glu Asn Met His Arg Tyr Gln Lys Ala Ala Lys Leu Phe Gln Gly Lys  
 180                                      185                                      190

Ile Leu Phe Ile Leu Val Asp Ser Gly Met Lys Glu Asn Gly Lys Val

195

200

205

Ile Ser Phe Phe Lys Leu Lys Glu Ser Arg Leu Pro Ala Leu Gly Ile

210

215

220

Tyr Gln Thr Leu Asp Asp Glu Trp Asp Thr Leu Pro Thr Ala Glu Val

225

230

235

240

Ser Val Glu His Val Gln Asn Phe Cys Asp Gly Phe

245

250

<210> 11

<211> 1481

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (183)..(1361)

<220>

<221> variation

<222> (22)

<223> where n can be any nucleotide

<400> 11

ggcgtttgtg gccgtccggc tncctgaca tgcagatttc caccagaag acagagaagg 60

agccagtggg catggaatgg gctgggggtca aagactgggt gcctgggagc tgaggcagcc 120

accgtttcag cctggccagc cctctggacc ccgaggttgg accctactgt gacacaccta 180

cc atg cgg aca ctc ttc aac ctc ctc tgg ctt gcc ctg gcc tgc agc 227

Met Arg Thr Leu Phe Asn Leu Leu Trp Leu Ala Leu Ala Cys Ser

1

5

10

15



cct gtt cac act acc ctg tca aag tca gat gcc aaa aaa gcc gcc tca 275

Pro Val His Thr Thr Leu Ser Lys Ser Asp Ala Lys Lys Ala Ala Ser

20

25

30

aag acg ctg ctg gag aag agt cag ttt tca gat aag ccg gtg caa gac 323

Lys Thr Leu Leu Glu Lys Ser Gln Phe Ser Asp Lys Pro Val Gln Asp

35

40

45

cgg ggt ttg gtg gtg acg gac ctc aaa gct gag agt gtg gtt ctt gag 371

Arg Gly Leu Val Val Thr Asp Leu Lys Ala Glu Ser Val Val Leu Glu

50

55

60

cat cgc agc tac tgc tcg gca aag gcc cgg gac aga cac ttt gct ggg 419

His Arg Ser Tyr Cys Ser Ala Lys Ala Arg Asp Arg His Phe Ala Gly

65

70

75

gat gta ctg ggc tat gtc act cca tgg aac agc cat ggc tac gat gtc 467

Asp Val Leu Gly Tyr Val Thr Pro Trp Asn Ser His Gly Tyr Asp Val

80

85

90

95

acc aag gtc ttt ggg agc aag ttc aca cag atc tca ccc gtc tgg ctg 515

Thr Lys Val Phe Gly Ser Lys Phe Thr Gln Ile Ser Pro Val Trp Leu

100

105

110

cag ctg aag aga cgt ggc cgt gag atg ttt gag gtc acg ggc ctc cac 563

Gln Leu Lys Arg Arg Gly Arg Glu Met Phe Glu Val Thr Gly Leu His

115

120

125

gac gtg gac caa ggg tgg atg cga gct gtc agg aag cat gcc aag ggc 611

Asp Val Asp Gln Gly Trp Met Arg Ala Val Arg Lys His Ala Lys Gly

130

135

140

ctg cac ata gtg cct cgg ctc cta ttt gag gac tgg act tac gat gat 659

Leu His Ile Val Pro Arg Leu Leu Phe Glu Asp Trp Thr Tyr Asp Asp

145

150

155

ttc cgg aac gtc tta gac agt gag gat gag ata gag gag ctg agc aag 707

Phe Arg Asn Val Leu Asp Ser Glu Asp Glu Ile Glu Glu Leu Ser Lys

160

165

170

175

D | acc gtg gtc cag gtg gca aag aac cag cat ttc gat ggc ttc gtg gtg 755

Thr Val Val Gln Val Ala Lys Asn Gln His Phe Asp Gly Phe Val Val

180

185

190

gag gtc tgg aac cag ctg cta agc cag aag cgc gtg ggc ctc atc cac 803

Glu Val Trp Asn Gln Leu Leu Ser Gln Lys Arg Val Gly Leu Ile His

195

200

205

atg ctc acc cac ttg gcc gag gct ctg cac cag gcc cgg ctg ctg gcc 851

Met Leu Thr His Leu Ala Glu Ala Leu His Gln Ala Arg Leu Leu Ala

210

215

220

ctc ctg gtc atc ccg cct gca atc acc ccc ggg acc gac cag ctg ggc 899

Leu Leu Val Ile Pro Pro Ala Ile Thr Pro Gly Thr Asp Gln Leu Gly

225

230

235

atg ttc acg cac aag gag ttt gag cag ctg gcc ccc gtg ctg gat ggt 947  
 Met Phe Thr His Lys Glu Phe Glu Gln Leu Ala Pro Val Leu Asp Gly  
 240 245 250 255

ttc agc ctc atg acc tac gac tac tct aca gcg cat cag cct ggc cct 995  
 Phe Ser Leu Met Thr Tyr Asp Tyr Ser Thr Ala His Gln Pro Gly Pro  
 260 265 270

aat gca ccc ctg tcc tgg gtt cga gcc tgc gtc cag gtc ctg gac ccg 1043  
 Asn Ala Pro Leu Ser Trp Val Arg Ala Cys Val Gln Val Leu Asp Pro  
 275 280 285

aag tcc aag tgg cga agc aaa atc ctc ctg ggg ctc aac ttt tat ggt 1091  
 Lys Ser Lys Trp Arg Ser Lys Ile Leu Leu Gly Leu Asn Phe Tyr Gly  
 290 295 300

atg gac tac gcg acc tcc aag gat gcc cgt gag cct gtt gtc ggg gcc 1139  
 Met Asp Tyr Ala Thr Ser Lys Asp Ala Arg Glu Pro Val Val Gly Ala  
 305 310 315

agg tac atc cag aca ctg aag gac cac agg ccc cgg atg gtg tgg gac 1187  
 Arg Tyr Ile Gln Thr Leu Lys Asp His Arg Pro Arg Met Val Trp Asp  
 320 325 330 335

agc cag gcc tca gag cac ttc ttc gag tac aag aag agc cgc agt ggg 1235  
 Ser Gln Ala Ser Glu His Phe Phe Glu Tyr Lys Lys Ser Arg Ser Gly  
 340 345 350

agg cac gtc gtc ttc tac cca acc ctg aag tcc ctg cag gtg cgg ctg 1283

Arg His Val Val Phe Tyr Pro Thr Leu Lys Ser Leu Gln Val Arg Leu

355

360

365

gag ctg gcc cgg gag ctg ggc gtt ggg gtc tct atc tgg gag ctg ggc 1331

Glu Leu Ala Arg Glu Leu Gly Val Gly Val Ser Ile Trp Glu Leu Gly

370

375

380

cag ggc ctg gac tac ttc tac gac ctg ctc taggtgggca ttgcggcctc 1381

Gln Gly Leu Asp Tyr Phe Tyr Asp Leu Leu

385

390

cgcggtggac gtgttctttt ctaagccatg gagtgagtga gcaggtgtga aatacaggcc 1441

tccactccgt ttgctgtgaa aaaaaaaaaa aaaaaaaaaa 1481

<210> 12

<211> 393

<212> PRT

<213> Homo sapiens

<400> 12

Met Arg Thr Leu Phe Asn Leu Leu Trp Leu Ala Leu Ala Cys Ser Pro

1

5

10

15

Val His Thr Thr Leu Ser Lys Ser Asp Ala Lys Lys Ala Ala Ser Lys

20

25

30

Thr Leu Leu Glu Lys Ser Gln Phe Ser Asp Lys Pro Val Gln Asp Arg

35

40

45

Gly Leu Val Val Thr Asp Leu Lys Ala Glu Ser Val Val Leu Glu His

50

55

60

Arg Ser Tyr Cys Ser Ala Lys Ala Arg Asp Arg His Phe Ala Gly Asp

65

70

75

80

Val Leu Gly Tyr Val Thr Pro Trp Asn Ser His Gly Tyr Asp Val Thr

85

90

95

Lys Val Phe Gly Ser Lys Phe Thr Gln Ile Ser Pro Val Trp Leu Gln

100

105

110

Leu Lys Arg Arg Gly Arg Glu Met Phe Glu Val Thr Gly Leu His Asp

115

120

125

Val Asp Gln Gly Trp Met Arg Ala Val Arg Lys His Ala Lys Gly Leu

130

135

140

His Ile Val Pro Arg Leu Leu Phe Glu Asp Trp Thr Tyr Asp Asp Phe

145

150

155

160

Arg Asn Val Leu Asp Ser Glu Asp Glu Ile Glu Glu Leu Ser Lys Thr

165

170

175

Val Val Gln Val Ala Lys Asn Gln His Phe Asp Gly Phe Val Val Glu

180

185

190

Val Trp Asn Gln Leu Leu Ser Gln Lys Arg Val Gly Leu Ile His Met

195

200

205

Leu Thr His Leu Ala Glu Ala Leu His Gln Ala Arg Leu Leu Ala Leu  
 210 215 220

Leu Val Ile Pro Pro Ala Ile Thr Pro Gly Thr Asp Gln Leu Gly Met  
 225 230 235 240

Phe Thr His Lys Glu Phe Glu Gln Leu Ala Pro Val Leu Asp Gly Phe  
 245 250 255

Ser Leu Met Thr Tyr Asp Tyr Ser Thr Ala His Gln Pro Gly Pro Asn  
 260 265 270

Ala Pro Leu Ser Trp Val Arg Ala Cys Val Gln Val Leu Asp Pro Lys  
 275 280 285

Ser Lys Trp Arg Ser Lys Ile Leu Leu Gly Leu Asn Phe Tyr Gly Met  
 290 295 300

Asp Tyr Ala Thr Ser Lys Asp Ala Arg Glu Pro Val Val Gly Ala Arg  
 305 310 315 320

Tyr Ile Gln Thr Leu Lys Asp His Arg Pro Arg Met Val Trp Asp Ser  
 325 330 335

Gln Ala Ser Glu His Phe Phe Glu Tyr Lys Lys Ser Arg Ser Gly Arg  
 340 345 350

His Val Val Phe Tyr Pro Thr Leu Lys Ser Leu Gln Val Arg Leu Glu

355

360

365

Leu Ala Arg Glu Leu Gly Val Gly Val Ser Ile Trp Glu Leu Gly Gln

370

375

380

Gly Leu Asp Tyr Phe Tyr Asp Leu Leu

385

390

&lt;210&gt; 13

&lt;211&gt; 811

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (91)..(486)

&lt;400&gt; 13

cccgccagcg ggtggaactc gggtagccc actccagctt tttccgaagg ccgccagggc 60

ctacccccaa gcccccccca gggcgcgggc atg ctc atg ggt tgc gct ggg ccc 114

Met Leu Met Gly Cys Ala Gly Pro

1

5

gga aag cat gcg cag cgg ctg gcc tgc ctt ccg ccc cgg gcc ctt tgc 162

Gly Lys His Ala Gln Arg Leu Ala Cys Leu Pro Pro Arg Ala Leu Cys

10

15

20

cca gaa gga tgg agc cct ttg cat tct ttt cgt cac ctc att tat tta 210

Pro Glu Gly Trp Ser Pro Leu His Ser Phe Arg His Leu Ile Tyr Leu

25

30

35

40

att ttt ttt ttt atg ttg gat gta gtt ttt ttt tct gtt gca att gtg 258

Ile Phe Phe Phe Met Leu Asp Val Val Phe Phe Ser Val Ala Ile Val

45 50 55  
 gca aat ata cat gtc cgc tgt ccc cag ttc cag cga caa caa aaa gac 306  
 Ala Asn Ile His Val Arg Cys Pro Gln Phe Gln Arg Gln Gln Lys Asp  
 60 65 70  
 aac ccc aac ctc ctc cag atg cac agt gtg tgt cac gcg tgt ctg gac 354  
 Asn Pro Asn Leu Leu Gln Met His Ser Val Cys His Ala Cys Leu Asp  
 75 80 85  
 tgt gaa gac atg cac ata gcg agc cta tac ggt tct aaa ggt cac tgg 402  
 Cys Glu Asp Met His Ile Ala Ser Leu Tyr Gly Ser Lys Gly His Trp  
 90 95 100  
 DI  
 agg gcg tgg ttt ctg tac cag ggc caa atc cca gca ccc agt acc ctg 450  
 Arg Ala Trp Phe Leu Tyr Gln Gly Gln Ile Pro Ala Pro Ser Thr Leu  
 105 110 115 120  
 cac acc cac cgc cct gtg ccc tgc atg tgg aaa tgc tgagagaacg 496  
 His Thr His Arg Pro Val Pro Cys Met Trp Lys Cys  
 125 130  
 tgctccagtt cgggcctccc cagccctccc ccaactggaag ggcaggtctg gtcccctttg 556  
 tcattgctcc tcaccactg ctgtctccaa ccccaaatag gagagtgcg gccacctggg 616  
 cagctcttct ttggagcatg catcctgctt ggccggctcc tctcctcct ccagccagtg 676  
 ggagcacttt acttgctgta ttttctgtg acctcccatg accgcaggga tgaagtcaat 736



gagcagttc ctccaattgc tactaagcca aaaccagtc ccagccttgc tcagatccct 796

ggaacacagt tagtg 811

<210> 14  
<211> 132  
<212> PRT  
<213> Homo sapiens

<400> 14  
Met Leu Met Gly Cys Ala Gly Pro Gly Lys His Ala Gln Arg Leu Ala

1 5 10 15

Cys Leu Pro Pro Arg Ala Leu Cys Pro Glu Gly Trp Ser Pro Leu His

20 25 30

Ser Phe Arg His Leu Ile Tyr Leu Ile Phe Phe Phe Met Leu Asp Val

35 40 45

Val Phe Phe Ser Val Ala Ile Val Ala Asn Ile His Val Arg Cys Pro

50 55 60

Gln Phe Gln Arg Gln Gln Lys Asp Asn Pro Asn Leu Leu Gln Met His

65 70 75 80

Ser Val Cys His Ala Cys Leu Asp Cys Glu Asp Met His Ile Ala Ser

85 90 95

Leu Tyr Gly Ser Lys Gly His Trp Arg Ala Trp Phe Leu Tyr Gln Gly

100 105 110

Gln Ile Pro Ala Pro Ser Thr Leu His Thr His Arg Pro Val Pro Cys

115

120

125

Met Trp Lys Cys

130

<210> 15  
<211> 734  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (146)..(460)

<220>  
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<222> (56)  
<223> where n can be any nucleotide

<220>  
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<222> (66)  
<223> where n can be any nucleotide

<220>  
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<222> (83)  
<223> where n can be any nucleotide

<220>  
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<222> (104)  
<223> where n can be any nucleotide

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<222> (112)  
<223> where n can be any nucleotide

<220>  
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<222> (113)  
<223> where n can be any nucleotide

<220>  
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<222> (135)  
<223> where n can be any nucleotide

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cgaagngccc catggggggg atnttacgga aaactaataa gatncaaaga annattacct 120

accttgataa aattnccttt aatga atg aac acc aca ctc agg ata aaa tcc 172

Met Asn Thr Thr Leu Arg Ile Lys Ser

1

5

aaa ctc cct act tct gca tat gtg gct ttc tgt gac ctg gct tgt gcc 220

Lys Leu Pro Thr Ser Ala Tyr Val Ala Phe Cys Asp Leu Ala Cys Ala

10

15

20

25

D1 cgt tcc cct agc tgc tcc cca atc tgg tct cct acc atg tca ctc tct 268

Arg Ser Pro Ser Cys Ser Pro Ile Trp Ser Pro Thr Met Ser Leu Ser

30

35

40

gtg tgc cac cca tgc tgg tct ctt tcc agt tca agc cca tcc agc ctc 316

Val Cys His Pro Cys Trp Ser Leu Ser Ser Ser Ser Pro Ser Ser Leu

45

50

55

tgg gct ttt ctc tgc ctt ttt ttg ttg ttc cct cct ccc gga atg ctt 364

Trp Ala Phe Leu Cys Leu Phe Leu Leu Phe Pro Pro Pro Gly Met Leu

60

65

70

ttc cca ggg tct ccc atg gct gac ttc tct ggc ctg agg gct cca ttc 412

Phe Pro Gly Ser Pro Met Ala Asp Phe Ser Gly Leu Arg Ala Pro Phe

75

80

85

aaa tgt cac ctc ctt aca gga gcc ttc tct gat gat cta aaa ggt ctc 460

Lys Cys His Leu Leu Thr Gly Ala Phe Ser Asp Asp Leu Lys Gly Leu

90

95

100

105

taggaacttt tagtgtcttc ctgtaattct ctgtacattt cctgtgtttc cttattttatt 520

tactgtttga aacatagtca tagtagacaa taaatattaa actacgtgaa actagtttag 580

tatttataat attataactt atttagatat aattatgtta ttataataaa atatgtgaaa 640

cagctgcttt tgtaggggaa aaagttgaat attggccatt ccacatgggt cactgaagaa 700

ataataatgt tatcattaag tgtacttatt ggca

734

<210> 16

<211> 105

<212> PRT

<213> Homo sapiens

<400> 16

Met Asn Thr Thr Leu Arg Ile Lys Ser Lys Leu Pro Thr Ser Ala Tyr

1

5

10

15

Val Ala Phe Cys Asp Leu Ala Cys Ala Arg Ser Pro Ser Cys Ser Pro

20

25

30

Ile Trp Ser Pro Thr Met Ser Leu Ser Val Cys His Pro Cys Trp Ser

35

40

45

Leu Ser Ser Ser Ser Pro Ser Ser Leu Trp Ala Phe Leu Cys Leu Phe

50

55

60

Leu Leu Phe Pro Pro Pro Gly Met Leu Phe Pro Gly Ser Pro Met Ala  
 65 70 75 80

Asp Phe Ser Gly Leu Arg Ala Pro Phe Lys Cys His Leu Leu Thr Gly  
 85 90 95

Ala Phe Ser Asp Asp Leu Lys Gly Leu  
 100 105

<210> 17  
 <211> 1659  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (244) .. (1473)

<400> 17  
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ttgcccccg gaggaagaa ctggaaccag cctctgacct gtccaggtgc cctgtccagc 120

tgactgcaag gacagagagg agtctgccc agctcttgga tcagtctgct ggccgaggag 180

cccgggtggag ccaggggtga ccttgagcc cagcctgccc cgaggaggcc ccggctcaga 240

gcc atg cca ggt gtc tgt gat agg gcc cct gac ttc ctc tcc ccg tct 288  
 Met Pro Gly Val Cys Asp Arg Ala Pro Asp Phe Leu Ser Pro Ser  
 1 5 10 15

gaa gac cag gtg ctg agg cct gcc ttg ggc agc tca gtg gct ctg aac 336  
 Glu Asp Gln Val Leu Arg Pro Ala Leu Gly Ser Ser Val Ala Leu Asn  
 20 25 30

tgc acg gct tgg gta gtc tct ggg ccc cac tgc tcc ctg cct tca gtc 384  
Cys Thr Ala Trp Val Val Ser Gly Pro His Cys Ser Leu Pro Ser Val

35

40

45

cag tgg ctg aaa gac ggg ctt cca ttg gga att ggg ggc cac tac agc 432  
Gln Trp Leu Lys Asp Gly Leu Pro Leu Gly Ile Gly Gly His Tyr Ser

50

55

60

ctc cac gag tac tcc tgg gtc aag gcc aac ctg tca gag gtg ctt gtg 480  
Leu His Glu Tyr Ser Trp Val Lys Ala Asn Leu Ser Glu Val Leu Val

65

70

75

D1 tcc agt gtc ctg ggg gtc aac gtg acc agc act gaa gtc tat ggg gcc 528  
Ser Ser Val Leu Gly Val Asn Val Thr Ser Thr Glu Val Tyr Gly Ala

80

85

90

95

ttc acc tgc tcc atc cag aac atc agc ttc tcc tcc ttc act ctt cag 576  
Phe Thr Cys Ser Ile Gln Asn Ile Ser Phe Ser Ser Phe Thr Leu Gln

100

105

110

aga gct ggc cct aca agc cac gtg gct gcg gtg ctg gcc tcc ctc ctg 624  
Arg Ala Gly Pro Thr Ser His Val Ala Ala Val Leu Ala Ser Leu Leu

115

120

125

gtc ctg ctg gcc ctg ctg ctg gcc gcc ctg ctc tat gtc aag tgc cgt 672  
Val Leu Leu Ala Leu Leu Leu Ala Ala Leu Leu Tyr Val Lys Cys Arg

130

135

140

ctc aac gtg ctg ctc tgg tac cag gac gcg tat ggg gag gtg gag ata 720  
 Leu Asn Val Leu Leu Trp Tyr Gln Asp Ala Tyr Gly Glu Val Glu Ile

145

150

155

aac gac ggg aag ctc tac gac gcc tac gtc tcc tac agc gac tgc ccc 768  
 Asn Asp Gly Lys Leu Tyr Asp Ala Tyr Val Ser Tyr Ser Asp Cys Pro

160

165

170

175

gag gac cgc aag ttc gtg aac ttc atc cta aag ccg cag ctg gag cgg 816  
 Glu Asp Arg Lys Phe Val Asn Phe Ile Leu Lys Pro Gln Leu Glu Arg

180

185

190

cgt cgg ggc tac aag ctc ttc ctg gac gac cgc gac ctc ctg ccc cgc 864  
 Arg Arg Gly Tyr Lys Leu Phe Leu Asp Asp Arg Asp Leu Leu Pro Arg

195

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gct gag ccc tcc gcc gac ctc ttg gtg aac ctg agc cgc tgc cga cgc 912  
 Ala Glu Pro Ser Ala Asp Leu Leu Val Asn Leu Ser Arg Cys Arg Arg

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ctc atc gtg gtg ctt tcg gac gcc ttc ctg agc cgg gcc tgg tgc agc 960  
 Leu Ile Val Val Leu Ser Asp Ala Phe Leu Ser Arg Ala Trp Cys Ser

225

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cac agc ttc cgg gag ggc ctg tgc cgg ctg ctg gag ctc acc cgc aga 1008  
 His Ser Phe Arg Glu Gly Leu Cys Arg Leu Leu Glu Leu Thr Arg Arg

240

245

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ccc atc ttc atc acc ttc gag ggc cag agg cgc gac ccc gcg cac ccg 1056  
Pro Ile Phe Ile Thr Phe Glu Gly Gln Arg Arg Asp Pro Ala His Pro

260

265

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gcg ctc cgc ctg ctg cgc cag cac cgc cac ctg gtg acc ttg ctg ctc 1104  
Ala Leu Arg Leu Leu Arg Gln His Arg His Leu Val Thr Leu Leu Leu

275

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285

tgg agg ccc ggc tcc gtg act cct tcc tcc gat ttt tgg aaa gaa gtg 1152  
Trp Arg Pro Gly Ser Val Thr Pro Ser Ser Asp Phe Trp Lys Glu Val

290

295

300

cag ctg gcg ctg ccg cgg aag gtg cgg tac agg ccg gtg gaa gga gac 1200  
Gln Leu Ala Leu Pro Arg Lys Val Arg Tyr Arg Pro Val Glu Gly Asp

305

310

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ccc cag acg cag ctg cag gac gac aag gac ccc atg ctg att ctt cga 1248  
Pro Gln Thr Gln Leu Gln Asp Asp Lys Asp Pro Met Leu Ile Leu Arg

320

325

330

335

ggc cga gtc cct gag ggc cgg gcc ctg gac tca gag gtg gac ccg gac 1296  
Gly Arg Val Pro Glu Gly Arg Ala Leu Asp Ser Glu Val Asp Pro Asp

340

345

350

cct gag ggc gac ctg ggt gtc cgg ggg cct gtt ttt gga gag cca tca 1344  
Pro Glu Gly Asp Leu Gly Val Arg Gly Pro Val Phe Gly Glu Pro Ser

355

360

365

gct cca ccg cac acc agt ggg gtc tcg ctg gga gag agc cgg agc agc 1392



Ala Pro Pro His Thr Ser Gly Val Ser Leu Gly Glu Ser Arg Ser Ser

370

375

380

gaa gtg gac gtc tcg gat ctc ggc tcg cga aac tac agt gcc cgc aca 1440

Glu Val Asp Val Ser Asp Leu Gly Ser Arg Asn Tyr Ser Ala Arg Thr

385

390

395

gac ttc tac tgc ctg gtg tcc aag gat gat atg tagctccac ccagagtgc 1493

Asp Phe Tyr Cys Leu Val Ser Lys Asp Asp Met

400

405

410

aggatcatag ggacagcggg gccagggcag cggcgctcgt cctctgctca acaggaccac 1553

aaccctgcc agcagccctg ggaccctgcc agcagccctg ggaaaaggct gtggcctcag 1613

ggcgctccc agtgccagaa aataaagtcc ttttggattc tgaaaa

1659

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<213> Homo sapiens

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Asp Gln Val Leu Arg Pro Ala Leu Gly Ser Ser Val Ala Leu Asn Cys

20

25

30

Thr Ala Trp Val Val Ser Gly Pro His Cys Ser Leu Pro Ser Val Gln

35

40

45

Trp Leu Lys Asp Gly Leu Pro Leu Gly Ile Gly Gly His Tyr Ser Leu

50

55

60

His Glu Tyr Ser Trp Val Lys Ala Asn Leu Ser Glu Val Leu Val Ser

65

70

75

80

Ser Val Leu Gly Val Asn Val Thr Ser Thr Glu Val Tyr Gly Ala Phe

85

90

95

Thr Cys Ser Ile Gln Asn Ile Ser Phe Ser Ser Phe Thr Leu Gln Arg

100

105

110

Ala Gly Pro Thr Ser His Val Ala Ala Val Leu Ala Ser Leu Leu Val

115

120

125

Leu Leu Ala Leu Leu Leu Ala Ala Leu Leu Tyr Val Lys Cys Arg Leu

130

135

140

Asn Val Leu Leu Trp Tyr Gln Asp Ala Tyr Gly Glu Val Glu Ile Asn

145

150

155

160

Asp Gly Lys Leu Tyr Asp Ala Tyr Val Ser Tyr Ser Asp Cys Pro Glu

165

170

175

Asp Arg Lys Phe Val Asn Phe Ile Leu Lys Pro Gln Leu Glu Arg Arg

180

185

190

Arg Gly Tyr Lys Leu Phe Leu Asp Asp Arg Asp Leu Leu Pro Arg Ala

195

200

205

Glu Pro Ser Ala Asp Leu Leu Val Asn Leu Ser Arg Cys Arg Arg Leu

210

215

220

Ile Val Val Leu Ser Asp Ala Phe Leu Ser Arg Ala Trp Cys Ser His

225

230

235

240

Ser Phe Arg Glu Gly Leu Cys Arg Leu Leu Glu Leu Thr Arg Arg Pro

245

250

255

Ile Phe Ile Thr Phe Glu Gly Gln Arg Arg Asp Pro Ala His Pro Ala

260

265

270

Leu Arg Leu Leu Arg Gln His Arg His Leu Val Thr Leu Leu Leu Trp

275

280

285

Arg Pro Gly Ser Val Thr Pro Ser Ser Asp Phe Trp Lys Glu Val Gln

290

295

300

Leu Ala Leu Pro Arg Lys Val Arg Tyr Arg Pro Val Glu Gly Asp Pro

305

310

315

320

Gln Thr Gln Leu Gln Asp Asp Lys Asp Pro Met Leu Ile Leu Arg Gly

325

330

335

Arg Val Pro Glu Gly Arg Ala Leu Asp Ser Glu Val Asp Pro Asp Pro

340

345

350

Glu Gly Asp Leu Gly Val Arg Gly Pro Val Phe Gly Glu Pro Ser Ala

355

360

365

Pro Pro His Thr Ser Gly Val Ser Leu Gly Glu Ser Arg Ser Ser Glu

370

375

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Val Asp Val Ser Asp Leu Gly Ser Arg Asn Tyr Ser Ala Arg Thr Asp

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Phe Tyr Cys Leu Val Ser Lys Asp Asp Met

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cccagetaat tttttgtttt gttttttag agactgggtc tcaactgtgtt gcccaggctg 180

gtcatgaact cctgggctca agtaatcccc gtgccttggt ctctgaaagt gttgggatta 240

caggcatgag ccaactgtgc tggccaaaaa agagctcttt aaaaaataat tttgtagatt 300

gacaaatgtg actcttgtaa ttttattgaa catgaaaaaa cccaggaatc tttatttgat 360

attaaacatt tttaaaggca tctcagttgt tgttgtaata acacattaag agaagtagtg 420

gttttttatt tccaaccttt gtgcatatag ctatttaatg cctacatgga tggctattat 480

ttcacttttt tcagttatta tgaagagatt gggtttcatt catttgtaaa gtttcagcca 540

gactgccttt cacaaattga tttgtcaaaa ttgaatgtta atcttgacat cccagtgcgt 600

ttttgcccgc gaacaggcct ttgaatgaag ctgcaaacac acattatctg gttgttaatt 660

gttttacaga tgagaactgg actgatgacc aactgcttgg ttttaaacca tgcaatgaaa 720

accttattgc tggctgcaat ataataatg ggaaatgtga atgtaacacc attcgaacct 780

gcagcaatcc ctttgagttt ccaagtcagg at atg tgc ctt tca gct tta aag 833

Met Cys Leu Ser Ala Leu Lys

1

5

aga att gaa gaa gag aag cca gat tgc tcc aag gcc cgc tgt gaa gtc 881

Arg Ile Glu Glu Glu Lys Pro Asp Cys Ser Lys Ala Arg Cys Glu Val

10

15

20

cag ttc tct cca cgt tgt cct gaa gat tct gtt ctg atc gag ggt tat 929

Gln Phe Ser Pro Arg Cys Pro Glu Asp Ser Val Leu Ile Glu Gly Tyr

25

30

35

gct cct cct ggg gag tgc tgt ccc tta ccc agc cgc tgc gtg tgc aac 977

Ala Pro Pro Gly Glu Cys Cys Pro Leu Pro Ser Arg Cys Val Cys Asn

40

45

50

55

ccc gca ggc tgt ctg cgc aaa gtc tgc cag ccg gga aac ctg aac ata 1025

Pro Ala Gly Cys Leu Arg Lys Val Cys Gln Pro Gly Asn Leu Asn Ile

60

65

70

cta gtg tca aaa gcc tca ggg aag ccg gga gag tgc tgt gac ctc tat 1073

Leu Val Ser Lys Ala Ser Gly Lys Pro Gly Glu Cys Cys Asp Leu Tyr

75

80

85

gag tgc aaa cca gtt ttc ggc gtg gac tgc agg act gtg gaa tgc cct 1121

Glu Cys Lys Pro Val Phe Gly Val Asp Cys Arg Thr Val Glu Cys Pro

90

95

100

D/ cct gtt cag cag acc gcg tgt ccc ccg gac agc tat gaa act caa gtc 1169

Pro Val Gln Gln Thr Ala Cys Pro Pro Asp Ser Tyr Glu Thr Gln Val

105

110

115

aga cta act gca gat ggt tgc tgt act ttg cca aca aga tgc gag tgt 1217

Arg Leu Thr Ala Asp Gly Cys Cys Thr Leu Pro Thr Arg Cys Glu Cys

120

125

130

135

ctc tct ggc tta tgt ggt ttc ccc gtg tgt gag gtg gga tcc act ccc 1265

Leu Ser Gly Leu Cys Gly Phe Pro Val Cys Glu Val Gly Ser Thr Pro

140

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cgc ata gtc tct cgt ggc gat ggg aca cct gga aag tgc tgt gat gtc 1313

Arg Ile Val Ser Arg Gly Asp Gly Thr Pro Gly Lys Cys Cys Asp Val

155

160

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ttt gaa tgt gtt aat gat aca aag cca gcc tgc gta ttt aac aat gtg 1361  
Phe Glu Cys Val Asn Asp Thr Lys Pro Ala Cys Val Phe Asn Asn Val

170

175

180

gaa tat tat gat gga gac atg ttt cga atg gac aac tgt cgg ttc tgt 1409  
Glu Tyr Tyr Asp Gly Asp Met Phe Arg Met Asp Asn Cys Arg Phe Cys

185

190

195

cga tgc caa ggg ggc gtt gcc atc tgc ttc act gcc cag tgt ggt gag 1457  
Arg Cys Gln Gly Gly Val Ala Ile Cys Phe Thr Ala Gln Cys Gly Glu

200

205

210

215

ata aac tgc gag agg tac tac gtg ccc gaa gga gag tgc tgc cca gtg 1505  
Ile Asn Cys Glu Arg Tyr Tyr Val Pro Glu Gly Glu Cys Cys Pro Val

220

225

230

tgt gaa gat cca gtg tat cct ttt aat aat ccc gct ggc tgc tat gcc 1553  
Cys Glu Asp Pro Val Tyr Pro Phe Asn Asn Pro Ala Gly Cys Tyr Ala

235

240

245

aat ggc ctg atc ctt gcc cac gga gac cgg tgg cgg gaa gac gac tgc 1601  
Asn Gly Leu Ile Leu Ala His Gly Asp Arg Trp Arg Glu Asp Asp Cys

250

255

260

aca ttc tgc cag tgc gtc aac ggt gaa cgc cac tgc gtt gcg acc gtc 1649  
Thr Phe Cys Gln Cys Val Asn Gly Glu Arg His Cys Val Ala Thr Val

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270

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tgc gga cag acc tgc aca aac cct gtg aaa gtg cct ggg gag tgt tgc 1697  
Cys Gly Gln Thr Cys Thr Asn Pro Val Lys Val Pro Gly Glu Cys Cys

280 285 290 295

cct gtg tgc gaa gaa cca acc atc atc aca gtt gat cca cct gca tgt 1745  
Pro Val Cys Glu Glu Pro Thr Ile Ile Thr Val Asp Pro Pro Ala Cys

300 305 310

ggg gag tta tca aac tgc act ctg aca ggg aag gac tgc att aat ggt 1793  
Gly Glu Leu Ser Asn Cys Thr Leu Thr Gly Lys Asp Cys Ile Asn Gly

315 320 325

ttc aaa cgc gat cac aat ggt tgt cgg acc tgt cag tgc ata aac acc 1841  
Phe Lys Arg Asp His Asn Gly Cys Arg Thr Cys Gln Cys Ile Asn Thr

330 335 340

gag gaa cta tgt tca gaa cgt aaa caa ggc tgc acc ttg aac tgt ccc 1889  
Glu Glu Leu Cys Ser Glu Arg Lys Gln Gly Cys Thr Leu Asn Cys Pro

345 350 355

ttc ggt ttc ctt act gat gcc caa aac tgt gag atc tgt gag tgc cgc 1937  
Phe Gly Phe Leu Thr Asp Ala Gln Asn Cys Glu Ile Cys Glu Cys Arg

360 365 370 375

cca agg ccc aag aag tgc aga ccc ata atc tgt gac aag tat tgt cca 1985  
Pro Arg Pro Lys Lys Cys Arg Pro Ile Ile Cys Asp Lys Tyr Cys Pro

380 385 390



ctt gga ttg ctg aag aat aag cac ggc tgt gac atc tgt cgc tgt aag 2033  
 Leu Gly Leu Leu Lys Asn Lys His Gly Cys Asp Ile Cys Arg Cys Lys

395

400

405

aaa tgt cca gag ctc tca tgc agt aag atc tgc ccc ttg ggt ttc cag 2081  
 Lys Cys Pro Glu Leu Ser Cys Ser Lys Ile Cys Pro Leu Gly Phe Gln

410

415

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cag gac agt cgc ggc tgt ctt atc tgc aag tgc aga gag gcc tct gct 2129  
 Gln Asp Ser Arg Gly Cys Leu Ile Cys Lys Cys Arg Glu Ala Ser Ala

425

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tca gct ggg cca ccc atc ctg tgc ggc act tgt ctc acc gtg gat ggt 2177  
 Ser Ala Gly Pro Pro Ile Leu Ser Gly Thr Cys Leu Thr Val Asp Gly

440

445

450

455

cat cat cat aaa aat gag gag agc tgg cac gat ggg tgc cgg gaa tgc 2225  
 His His His Lys Asn Glu Glu Ser Trp His Asp Gly Cys Arg Glu Cys

460

465

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tac tgt ctc aat gga cgg gaa atg tgt gcc ctg atc acc tgc ccg gtg 2273  
 Tyr Cys Leu Asn Gly Arg Glu Met Cys Ala Leu Ile Thr Cys Pro Val

475

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cct gcc tgt ggc aac ccc acc att cac cct gga cag tgc tgc cca tca 2321  
 Pro Ala Cys Gly Asn Pro Thr Ile His Pro Gly Gln Cys Cys Pro Ser

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495

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tgt gca gat gac ttt gtg gtg cag aag cca gag ctc agt act ccc tcc 2369  
Cys Ala Asp Asp Phe Val Val Gln Lys Pro Glu Leu Ser Thr Pro Ser

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515

att tgc cac gcc cct gga gga gaa tac ttt gtg gaa gga gaa acg tgg 2417  
Ile Cys His Ala Pro Gly Gly Glu Tyr Phe Val Glu Gly Glu Thr Trp

520

525

530

535

aac att gac tcc tgt act cag tgc acc tgc cac agc gga cgg gtg ctg 2465  
Asn Ile Asp Ser Cys Thr Gln Cys Thr Cys His Ser Gly Arg Val Leu

540

545

550

tgt gag aca gag gtg tgc cca ccg ctg ctc tgc cag aac ccc tca cgc 2513  
Cys Glu Thr Glu Val Cys Pro Pro Leu Leu Cys Gln Asn Pro Ser Arg

555

560

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acc cag gat tcc tgc tgc cca cag tgt aca gat caa cct ttt cgg cct 2561  
Thr Gln Asp Ser Cys Cys Pro Gln Cys Thr Asp Gln Pro Phe Arg Pro

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575

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tcc ttg tcc cgc aat aac agc gta cct aat tac tgc aaa aat gat gaa 2609  
Ser Leu Ser Arg Asn Asn Ser Val Pro Asn Tyr Cys Lys Asn Asp Glu

585

590

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ggg gat ata ttc ctg gca gct gag tcc tgg aag cct gac gtt tgt acc 2657  
Gly Asp Ile Phe Leu Ala Ala Glu Ser Trp Lys Pro Asp Val Cys Thr

600

605

610

615

agc tgc atc tgc att gat agc gta att agc tgt ttc tct gag tcc tgc 2705

Ser Cys Ile Cys Ile Asp Ser Val Ile Ser Cys Phe Ser Glu Ser Cys

620

625

630

cct tct gta tcc tgt gaa aga cct gtc ttg aga aaa ggc cag tgt tgt 2753

Pro Ser Val Ser Cys Glu Arg Pro Val Leu Arg Lys Gly Gln Cys Cys

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640

645

ccc tac tgc ata gaa gac aca att cca aag aag gtg gtg tgc cac ttc 2801

Pro Tyr Cys Ile Glu Asp Thr Ile Pro Lys Lys Val Val Cys His Phe

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655

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agt ggg aag gcc tat gcc gac gag gag cgg tgg gac ctt gac agc tgc 2849

Ser Gly Lys Ala Tyr Ala Asp Glu Glu Arg Trp Asp Leu Asp Ser Cys

665

670

675

acc cac tac tac tgc ctg cag ggc cag acc ctc tgc tcg acc gtc agc 2897

Thr His Tyr Tyr Cys Leu Gln Gly Gln Thr Leu Cys Ser Thr Val Ser

680

685

690

695

tgc ccc cct ctg ccc tgt gtt gag ccc atc aac gtg gaa gga agt tgc 2945

Cys Pro Pro Leu Pro Cys Val Glu Pro Ile Asn Val Glu Gly Ser Cys

700

705

710

tgc cca atg tgt cca gtt tca cct tta cca tct ttg gat atg agt aca 2993

Cys Pro Met Cys Pro Val Ser Pro Leu Pro Ser Leu Asp Met Ser Thr

715

720

725

gaa cct atg agc tgt taggtgatta gcacctgtct ctttacagaa gaaactgagg 3048

Glu Pro Met Ser Cys

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ctcaggaaag agccctgtg ggaagaggac tcaactgtcat gcctcagctt ggtggagttt 3108

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agaaactttt actacttagc cattgacatt tacagtataa tacctatctg atcaaactgg 3288

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aatggacatc tga 3361

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<213> Homo sapiens

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Ser Lys Ala Arg Cys Glu Val Gln Phe Ser Pro Arg Cys Pro Glu Asp

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Ser Val Leu Ile Glu Gly Tyr Ala Pro Pro Gly Glu Cys Cys Pro Leu

35 40 45

Pro Ser Arg Cys Val Cys Asn Pro Ala Gly Cys Leu Arg Lys Val Cys

50 55 60

Gln Pro Gly Asn Leu Asn Ile Leu Val Ser Lys Ala Ser Gly Lys Pro

65

70

75

80

Gly Glu Cys Cys Asp Leu Tyr Glu Cys Lys Pro Val Phe Gly Val Asp

85

90

95

Cys Arg Thr Val Glu Cys Pro Pro Val Gln Gln Thr Ala Cys Pro Pro

100

105

110

Asp Ser Tyr Glu Thr Gln Val Arg Leu Thr Ala Asp Gly Cys Cys Thr

115

120

125

Leu Pro Thr Arg Cys Glu Cys Leu Ser Gly Leu Cys Gly Phe Pro Val

130

135

140

Cys Glu Val Gly Ser Thr Pro Arg Ile Val Ser Arg Gly Asp Gly Thr

145

150

155

160

Pro Gly Lys Cys Cys Asp Val Phe Glu Cys Val Asn Asp Thr Lys Pro

165

170

175

Ala Cys Val Phe Asn Asn Val Glu Tyr Tyr Asp Gly Asp Met Phe Arg

180

185

190

Met Asp Asn Cys Arg Phe Cys Arg Cys Gln Gly Gly Val Ala Ile Cys

195

200

205

Phe Thr Ala Gln Cys Gly Glu Ile Asn Cys Glu Arg Tyr Tyr Val Pro

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 Glu Gly Glu Cys Cys Pro Val Cys Glu Asp Pro Val Tyr Pro Phe Asn  
 225                      230                      235                      240  
 Asn Pro Ala Gly Cys Tyr Ala Asn Gly Leu Ile Leu Ala His Gly Asp  
                          245                      250                      255  
 Arg Trp Arg Glu Asp Asp Cys Thr Phe Cys Gln Cys Val Asn Gly Glu  
                          260                      265                      270  
 Arg His Cys Val Ala Thr Val Cys Gly Gln Thr Cys Thr Asn Pro Val  
                          275                      280                      285  
 Lys Val Pro Gly Glu Cys Cys Pro Val Cys Glu Glu Pro Thr Ile Ile  
                          290                      295                      300  
 Thr Val Asp Pro Pro Ala Cys Gly Glu Leu Ser Asn Cys Thr Leu Thr  
 305                      310                      315                      320  
 Gly Lys Asp Cys Ile Asn Gly Phe Lys Arg Asp His Asn Gly Cys Arg  
                          325                      330                      335  
 Thr Cys Gln Cys Ile Asn Thr Glu Glu Leu Cys Ser Glu Arg Lys Gln  
                          340                      345                      350  
 Gly Cys Thr Leu Asn Cys Pro Phe Gly Phe Leu Thr Asp Ala Gln Asn  
                          355                      360                      365

Cys Glu Ile Cys Glu Cys Arg Pro Arg Pro Lys Lys Cys Arg Pro Ile

370

375

380

Ile Cys Asp Lys Tyr Cys Pro Leu Gly Leu Leu Lys Asn Lys His Gly

385

390

395

400

Cys Asp Ile Cys Arg Cys Lys Lys Cys Pro Glu Leu Ser Cys Ser Lys

405

410

415

Ile Cys Pro Leu Gly Phe Gln Gln Asp Ser Arg Gly Cys Leu Ile Cys

420

425

430

Lys Cys Arg Glu Ala Ser Ala Ser Ala Gly Pro Pro Ile Leu Ser Gly

435

440

445

Thr Cys Leu Thr Val Asp Gly His His His Lys Asn Glu Glu Ser Trp

450

455

460

His Asp Gly Cys Arg Glu Cys Tyr Cys Leu Asn Gly Arg Glu Met Cys

465

470

475

480

Ala Leu Ile Thr Cys Pro Val Pro Ala Cys Gly Asn Pro Thr Ile His

485

490

495

Pro Gly Gln Cys Cys Pro Ser Cys Ala Asp Asp Phe Val Val Gln Lys

500

505

510

Pro Glu Leu Ser Thr Pro Ser Ile Cys His Ala Pro Gly Gly Glu Tyr

515

520

525

Phe Val Glu Gly Glu Thr Trp Asn Ile Asp Ser Cys Thr Gln Cys Thr

530

535

540

Cys His Ser Gly Arg Val Leu Cys Glu Thr Glu Val Cys Pro Pro Leu

545

550

555

560

Leu Cys Gln Asn Pro Ser Arg Thr Gln Asp Ser Cys Cys Pro Gln Cys

565

570

575

Thr Asp Gln Pro Phe Arg Pro Ser Leu Ser Arg Asn Asn Ser Val Pro

580

585

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Asn Tyr Cys Lys Asn Asp Glu Gly Asp Ile Phe Leu Ala Ala Glu Ser

595

600

605

Trp Lys Pro Asp Val Cys Thr Ser Cys Ile Cys Ile Asp Ser Val Ile

610

615

620

Ser Cys Phe Ser Glu Ser Cys Pro Ser Val Ser Cys Glu Arg Pro Val

625

630

635

640

Leu Arg Lys Gly Gln Cys Cys Pro Tyr Cys Ile Glu Asp Thr Ile Pro

645

650

655

Lys Lys Val Val Cys His Phe Ser Gly Lys Ala Tyr Ala Asp Glu Glu

660

665

670



Arg Trp Asp Leu Asp Ser Cys Thr His Tyr Tyr Cys Leu Gln Gly Gln

675

680

685

Thr Leu Cys Ser Thr Val Ser Cys Pro Pro Leu Pro Cys Val Glu Pro

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Ile Asn Val Glu Gly Ser Cys Cys Pro Met Cys Pro Val Ser Pro Leu

705

710

715

720

Pro Ser Leu Asp Met Ser Thr Glu Pro Met Ser Cys

725

730

<210> 21

<211> 1431

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (69)..(1211)

<220>

<221> variation

<222> (1303)

<223> where n can be any nucleotide

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agctagag atg ctg cac gct gct aac aag gga agg aag cct tca gct gag 110

Met Leu His Ala Ala Asn Lys Gly Arg Lys Pro Ser Ala Glu

1

5

10

gca ggt cgt ccc att cca cct aca tcc tcg cct agt ctc ctc cca tct 158

Ala Gly Arg Pro Ile Pro Pro Thr Ser Ser Pro Ser Leu Leu Pro Ser

15

20

25

30

gct cag ctg cct agc tcc cat aat cct cca cca gtt agc tgc cag atg 206  
Ala Gln Leu Pro Ser Ser His Asn Pro Pro Pro Val Ser Cys Gln Met

35

40

45

cca ttg cta gac agc aac acc tcc cat caa atc atg gac acc aac cct 254  
Pro Leu Leu Asp Ser Asn Thr Ser His Gln Ile Met Asp Thr Asn Pro

50

55

60

gat gag gaa ttc tcc ccc aat tca tac ctg ctc aga gca tgc tca ggg 302  
Asp Glu Glu Phe Ser Pro Asn Ser Tyr Leu Leu Arg Ala Cys Ser Gly

65

70

75

ccc cag caa gcc tcc agc agt ggc cct ccg aac cac cac agc cag tcg 350  
Pro Gln Gln Ala Ser Ser Ser Gly Pro Pro Asn His His Ser Gln Ser

80

85

90

act ctg agg ccc cct ctc cca ccc cct cac aac cac acg ctg tcc cat 398  
Thr Leu Arg Pro Pro Leu Pro Pro Pro His Asn His Thr Leu Ser His

95

100

105

110

cac cac tcg tcc gcc aac tcc ctc aac agg aac tca ctg acc aat cgg 446  
His His Ser Ser Ala Asn Ser Leu Asn Arg Asn Ser Leu Thr Asn Arg

115

120

125

cgg agt cag atc cac gcc ccg gcc cca gcg ccc aat gac ctg gcc acc 494  
Arg Ser Gln Ile His Ala Pro Ala Pro Ala Pro Asn Asp Leu Ala Thr

130

135

140

aca cca gag tcc gtt cag ctt cag gac agc tgg gtg cta aac agc aac 542

Thr Pro Glu Ser Val Gln Leu Gln Asp Ser Trp Val Leu Asn Ser Asn

145

150

155

gtg cca ctg gag acc cgg cac ttc ctc ttc aag acc tcc tcg ggg agc 590

Val Pro Leu Glu Thr Arg His Phe Leu Phe Lys Thr Ser Ser Gly Ser

160

165

170

aca ccc ttg ttc agc agc tct tcc ccg gga tac cct ttg acc tca gga 638

Thr Pro Leu Phe Ser Ser Ser Ser Pro Gly Tyr Pro Leu Thr Ser Gly

175

180

185

190

acg gtt tac acg ccc ccg ccc cgc ctg ctg ccc agg aat act ttc tcc 686

Thr Val Tyr Thr Pro Pro Pro Arg Leu Leu Pro Arg Asn Thr Phe Ser

195

200

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agg aag gct ttc aag ctg aag aag ccc tcc aaa tac tgc agc tgg aaa 734

Arg Lys Ala Phe Lys Leu Lys Lys Pro Ser Lys Tyr Cys Ser Trp Lys

210

215

220

tgt gct gcc ctc tcc gcc att gcc gcg gcc ctc ctc ttg gct att ttg 782

Cys Ala Ala Leu Ser Ala Ile Ala Ala Ala Leu Leu Leu Ala Ile Leu

225

230

235

ctg gcg tat ttc ata gtg ccc tgg tcg ttg aaa aac agc agc ata gac 830

Leu Ala Tyr Phe Ile Val Pro Trp Ser Leu Lys Asn Ser Ser Ile Asp

240

245

250

DI

agt ggt gaa gca gaa gtt ggt cgg cgg gta aca caa gaa gtc cca cca 878  
 Ser Gly Glu Ala Glu Val Gly Arg Arg Val Thr Gln Glu Val Pro Pro  
 255 260 265 270

ggg gtg ttt tgg agg tca caa att cac atc agt cag ccc cag ttc tta 926  
 Gly Val Phe Trp Arg Ser Gln Ile His Ile Ser Gln Pro Gln Phe Leu  
 275 280 285

aag ttc aac atc tcc ctc ggg aag gac gct ctc ttt ggt gtt tac ata 974  
 Lys Phe Asn Ile Ser Leu Gly Lys Asp Ala Leu Phe Gly Val Tyr Ile  
 290 295 300

aga aga gga ctt cca cca tct cat gcc cag tat gac ttc atg gaa cgt 1022  
 Arg Arg Gly Leu Pro Pro Ser His Ala Gln Tyr Asp Phe Met Glu Arg  
 305 310 315

ctg gac ggg aag gag aag tgg agt gtg gtt gag tct ccc agg gaa cgc 1070  
 Leu Asp Gly Lys Glu Lys Trp Ser Val Val Glu Ser Pro Arg Glu Arg  
 320 325 330

cgg agc ata cag acc ttg gtt cag aat gaa gcc gtg ttt gtg cag tac 1118  
 Arg Ser Ile Gln Thr Leu Val Gln Asn Glu Ala Val Phe Val Gln Tyr  
 335 340 345 350

ctg gat gtg ggc ctg tgg cat ctg gcc ttc tac aat gat gga aaa gac 1166  
 Leu Asp Val Gly Leu Trp His Leu Ala Phe Tyr Asn Asp Gly Lys Asp  
 355 360 365

DI

aaa gag atg gtt tcc ttc aat act gtt gtc cta gat ggg acc atc 1211

Lys Glu Met Val Ser Phe Asn Thr Val Val Leu Asp Gly Thr Ile

370

375

380

tagttgcaga aaaacaagct cagggcgccc actgatttga cattatgatt cagtgcagga 1271

ctgtccacgt aactgccatg ggaatggtga antgtgtgtc cggggtgtgt cactgtttcc 1331

caggatttct aggagcagac tgtgctaaag accttcctgc cttgactttc tgcaagacaa 1391

tcattaataa agctgctctg taaataactaa aaaaaaaca

1431

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<211> 381

<212> PRT

<213> Homo sapiens

<400> 22

Met Leu His Ala Ala Asn Lys Gly Arg Lys Pro Ser Ala Glu Ala Gly

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15

Arg Pro Ile Pro Pro Thr Ser Ser Pro Ser Leu Leu Pro Ser Ala Gln

20

25

30

Leu Pro Ser Ser His Asn Pro Pro Pro Val Ser Cys Gln Met Pro Leu

35

40

45

Leu Asp Ser Asn Thr Ser His Gln Ile Met Asp Thr Asn Pro Asp Glu

50

55

60

Glu Phe Ser Pro Asn Ser Tyr Leu Leu Arg Ala Cys Ser Gly Pro Gln

65

70

75

80

Gln Ala Ser Ser Ser Gly Pro Pro Asn His His Ser Gln Ser Thr Leu

85

90

95

Arg Pro Pro Leu Pro Pro Pro His Asn His Thr Leu Ser His His His

100

105

110

Ser Ser Ala Asn Ser Leu Asn Arg Asn Ser Leu Thr Asn Arg Arg Ser

115

120

125

Gln Ile His Ala Pro Ala Pro Ala Pro Asn Asp Leu Ala Thr Thr Pro

130

135

140

Glu Ser Val Gln Leu Gln Asp Ser Trp Val Leu Asn Ser Asn Val Pro

145

150

155

160

Leu Glu Thr Arg His Phe Leu Phe Lys Thr Ser Ser Gly Ser Thr Pro

165

170

175

Leu Phe Ser Ser Ser Ser Pro Gly Tyr Pro Leu Thr Ser Gly Thr Val

180

185

190

Tyr Thr Pro Pro Pro Arg Leu Leu Pro Arg Asn Thr Phe Ser Arg Lys

195

200

205

Ala Phe Lys Leu Lys Lys Pro Ser Lys Tyr Cys Ser Trp Lys Cys Ala

210

215

220

Ala Leu Ser Ala Ile Ala Ala Ala Leu Leu Leu Ala Ile Leu Leu Ala

225 230 235 240

Tyr Phe Ile Val Pro Trp Ser Leu Lys Asn Ser Ser Ile Asp Ser Gly

245 250 255

Glu Ala Glu Val Gly Arg Arg Val Thr Gln Glu Val Pro Pro Gly Val

260 265 270

Phe Trp Arg Ser Gln Ile His Ile Ser Gln Pro Gln Phe Leu Lys Phe

275 280 285

Asn Ile Ser Leu Gly Lys Asp Ala Leu Phe Gly Val Tyr Ile Arg Arg

290 295 300

D1 Gly Leu Pro Pro Ser His Ala Gln Tyr Asp Phe Met Glu Arg Leu Asp

305 310 315 320

Gly Lys Glu Lys Trp Ser Val Val Glu Ser Pro Arg Glu Arg Arg Ser

325 330 335

Ile Gln Thr Leu Val Gln Asn Glu Ala Val Phe Val Gln Tyr Leu Asp

340 345 350

Val Gly Leu Trp His Leu Ala Phe Tyr Asn Asp Gly Lys Asp Lys Glu

355 360 365

Met Val Ser Phe Asn Thr Val Val Leu Asp Gly Thr Ile

370 375 380

<210> 23  
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 <222> (517)..(1728)

<400> 23  
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cactccttgc agcctcgcc cgcaccttct ccaacacccc ggcacccctg caccacctgc 180

tggggcagcc ccggcgggct ctgggacttg ctgtgcgcgc cgagaggaag gcaagctcca 240

aaacctgccc tggaagacgg gctgtcgcgg ctgcaccacc agcaggagga ggaggagaag 300

aaactatttc gcgatacccc attctgcggg tgctttgccg ctgcgcttc tgctgccgcc 360

gatccgagtc cgcgggttcg aacaccgcag cgggtggggac ggtgggtccg gcgggcgccg 420

ggaggaggac accagcggag cctgcactc tcgtgccccg ctcaccagca tctacttgcc 480

ccctcgttcc tccccagcc ctttagagaa gggacc atg att tgg aaa cgc agc 534

Met Ile Trp Lys Arg Ser

1

5

gcc gtt ctc cgc ttc tac agt gtc tgc ggg ctc ctg cta caa gcg gct 582

Ala Val Leu Arg Phe Tyr Ser Val Cys Gly Leu Leu Leu Gln Ala Ala

10

15

20



gct tca aag aat aaa gtt aaa ggc agc caa ggg cag ttt cca cta aca 630

Ala Ser Lys Asn Lys Val Lys Gly Ser Gln Gly Gln Phe Pro Leu Thr

25

30

35

cag aat gta acc gtt gtt gaa ggt gga act gca att ttg acc tgc agg 678

Gln Asn Val Thr Val Val Glu Gly Gly Thr Ala Ile Leu Thr Cys Arg

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45

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gtt gat caa aat gat aac acc tcc ctc cag tgg tca aat cca gct caa 726

Val Asp Gln Asn Asp Asn Thr Ser Leu Gln Trp Ser Asn Pro Ala Gln

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60

65

70

cag act ctg tac ttt gac gac aag aaa gct tta agg gac aat agg atc 774

Gln Thr Leu Tyr Phe Asp Asp Lys Lys Ala Leu Arg Asp Asn Arg Ile

75

80

85

gag ctg gtt cgc gct tcc tgg cat gaa ttg agt att agt gtc agt gat 822

Glu Leu Val Arg Ala Ser Trp His Glu Leu Ser Ile Ser Val Ser Asp

90

95

100

gtg tct ctc tct gat gaa gga cag tac acc tgt tct tta ttt aca atg 870

Val Ser Leu Ser Asp Glu Gly Gln Tyr Thr Cys Ser Leu Phe Thr Met

105

110

115

cct gtc aaa act tcc aag gca tat ctc acc gtt ctg ggt gtt cct gaa 918

Pro Val Lys Thr Ser Lys Ala Tyr Leu Thr Val Leu Gly Val Pro Glu

120

125

130

aag cct cag att agt gga ttc tca tca cca gtt atg gag ggt gac ttg 966  
 Lys Pro Gln Ile Ser Gly Phe Ser Ser Pro Val Met Glu Gly Asp Leu  
 135 140 145 150

atg cag ctg act tgc aaa aca tct ggt agt aaa cct gca gct gat ata 1014  
 Met Gln Leu Thr Cys Lys Thr Ser Gly Ser Lys Pro Ala Ala Asp Ile  
 155 160 165

aga tgg ttc aaa aat gac aaa gag att aaa gat gta aaa tat tta aaa 1062  
 Arg Trp Phe Lys Asn Asp Lys Glu Ile Lys Asp Val Lys Tyr Leu Lys  
 170 175 180

gaa gag gat gca aat cgc aag aca ttc act gtc agc agc aca ctg gac 1110  
 Glu Glu Asp Ala Asn Arg Lys Thr Phe Thr Val Ser Ser Thr Leu Asp  
 185 190 195

ttc cga gtg gac cgg agt gat gat gga gtg gcg gtc atc tgc aga gta 1158  
 Phe Arg Val Asp Arg Ser Asp Asp Gly Val Ala Val Ile Cys Arg Val  
 200 205 210

gat cac gaa tcc ctc aat gcc acc cct cag gta gcc atg cag gtg cta 1206  
 Asp His Glu Ser Leu Asn Ala Thr Pro Gln Val Ala Met Gln Val Leu  
 215 220 225 230

gaa ata cac tat aca cca tca gtt aag att ata cca tcg act cct ttt 1254  
 Glu Ile His Tyr Thr Pro Ser Val Lys Ile Ile Pro Ser Thr Pro Phe  
 235 240 245

cca caa gaa gga cag cct tta att ttg act tgt gaa tcc aaa gga aaa 1302

Pro Gln Glu Gly Gln Pro Leu Ile Leu Thr Cys Glu Ser Lys Gly Lys

250

255

260

cca ctg cca gaa cct gtt ttg tgg aca aag gat ggc gga gaa tta cca 1350

Pro Leu Pro Glu Pro Val Leu Trp Thr Lys Asp Gly Gly Glu Leu Pro

265

270

275

gat cct gac cga atg gtt gtg agt ggt agg gag cta aac att ctt ttc 1398

Asp Pro Asp Arg Met Val Val Ser Gly Arg Glu Leu Asn Ile Leu Phe

280

285

290

ctg aac aaa acg gat aat ggt aca tat cga tgt gaa gcc aca aac acc 1446

Leu Asn Lys Thr Asp Asn Gly Thr Tyr Arg Cys Glu Ala Thr Asn Thr

295

300

305

310

att ggc caa agc agt gcg gaa tat gtt ctc att gtg cat gat cct aat 1494

Ile Gly Gln Ser Ser Ala Glu Tyr Val Leu Ile Val His Asp Pro Asn

315

320

325

gct ttg gct ggc cag aat ggc cct gac cat gct ctc ata gga gga ata 1542

Ala Leu Ala Gly Gln Asn Gly Pro Asp His Ala Leu Ile Gly Gly Ile

330

335

340

gtg gct gta gtt gta ttt gtc acg ctg tgt tct atc ttt ctg ctt ggt 1590

Val Ala Val Val Val Phe Val Thr Leu Cys Ser Ile Phe Leu Leu Gly

345

350

355

cga tat ctg gca agg cat aaa gga acg tat tta aca aat gaa gct aaa 1638

Arg Tyr Leu Ala Arg His Lys Gly Thr Tyr Leu Thr Asn Glu Ala Lys

360

365

370

gga gct gaa gat gca cca gat gct gat aca gcc att atc aat gct gaa 1686

Gly Ala Glu Asp Ala Pro Asp Ala Asp Thr Ala Ile Ile Asn Ala Glu

375

380

385

390

ggc agc caa gtc aat gct gaa gag aaa aaa gag tat ttc att 1728

Gly Ser Gln Val Asn Ala Glu Glu Lys Lys Glu Tyr Phe Ile

395

400

taagatgcag gccagattc tgagttttac taccaggctg aatgctggag aaaactggct 1788

atcatctttc agaagtcatt tctaccatcg tctgctaccc ttattaactc ccatactgta 1848

ctgctatcag tagccagtgt ataccaacaa tcagctggtg aaagcatcat tctttaatta 1908

ctgtaccatc cataatgcag gacatttctt actgcctaaa tttcacacca ttgctctttt 1968

aacatacagt gcttgaatat acagccttaa caatgttaat catctccttg gatcattata 2028

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tttaagtcac agaccttacc agtttgcc 2116

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<211> 404

<212> PRT

<213> Homo sapiens

<400> 24

Met Ile Trp Lys Arg Ser Ala Val Leu Arg Phe Tyr Ser Val Cys Gly

1 5 10 15

Leu Leu Leu Gln Ala Ala Ala Ser Lys Asn Lys Val Lys Gly Ser Gln

20 25 30

Gly Gln Phe Pro Leu Thr Gln Asn Val Thr Val Val Glu Gly Gly Thr

35 40 45

Ala Ile Leu Thr Cys Arg Val Asp Gln Asn Asp Asn Thr Ser Leu Gln

50 55 60

Trp Ser Asn Pro Ala Gln Gln Thr Leu Tyr Phe Asp Asp Lys Lys Ala

65 70 75 80

Leu Arg Asp Asn Arg Ile Glu Leu Val Arg Ala Ser Trp His Glu Leu

85 90 95

Ser Ile Ser Val Ser Asp Val Ser Leu Ser Asp Glu Gly Gln Tyr Thr

100 105 110

Cys Ser Leu Phe Thr Met Pro Val Lys Thr Ser Lys Ala Tyr Leu Thr

115 120 125

Val Leu Gly Val Pro Glu Lys Pro Gln Ile Ser Gly Phe Ser Ser Pro

130 135 140

Val Met Glu Gly Asp Leu Met Gln Leu Thr Cys Lys Thr Ser Gly Ser

145 150 155 160

Lys Pro Ala Ala Asp Ile Arg Trp Phe Lys Asn Asp Lys Glu Ile Lys

165

170

175

Asp Val Lys Tyr Leu Lys Glu Glu Asp Ala Asn Arg Lys Thr Phe Thr

180

185

190

Val Ser Ser Thr Leu Asp Phe Arg Val Asp Arg Ser Asp Asp Gly Val

195

200

205

Ala Val Ile Cys Arg Val Asp His Glu Ser Leu Asn Ala Thr Pro Gln

210

215

220

Val Ala Met Gln Val Leu Glu Ile His Tyr Thr Pro Ser Val Lys Ile

225

230

235

240

Ile Pro Ser Thr Pro Phe Pro Gln Glu Gly Gln Pro Leu Ile Leu Thr

245

250

255

Cys Glu Ser Lys Gly Lys Pro Leu Pro Glu Pro Val Leu Trp Thr Lys

260

265

270

Asp Gly Gly Glu Leu Pro Asp Pro Asp Arg Met Val Val Ser Gly Arg

275

280

285

Glu Leu Asn Ile Leu Phe Leu Asn Lys Thr Asp Asn Gly Thr Tyr Arg

290

295

300

Cys Glu Ala Thr Asn Thr Ile Gly Gln Ser Ser Ala Glu Tyr Val Leu  
 305 310 315 320

Ile Val His Asp Pro Asn Ala Leu Ala Gly Gln Asn Gly Pro Asp His  
 325 330 335

Ala Leu Ile Gly Gly Ile Val Ala Val Val Val Phe Val Thr Leu Cys  
 340 345 350

Ser Ile Phe Leu Leu Gly Arg Tyr Leu Ala Arg His Lys Gly Thr Tyr  
 355 360 365

Leu Thr Asn Glu Ala Lys Gly Ala Glu Asp Ala Pro Asp Ala Asp Thr  
 370 375 380

Ala Ile Ile Asn Ala Glu Gly Ser Gln Val Asn Ala Glu Glu Lys Lys  
 385 390 395 400

Glu Tyr Phe Ile

<210> 25  
 <211> 2862  
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 <213> Homo sapiens

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 <222> (508)..(2556)

<400> 25  
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ctctcttagg ataggtcttc ttgggaaatg ctttcatttc taatgcaaag aaaattgtgc 120

aggcagccac gttaagatgt ttttctgaca ataattggcc aagatattcc actgtgtctc 180

gaggccactc ctgaaaagag gaagtttgtt ttctgttgtt tctgacagga agaggtggat 240

ctacttcate aacatgcagt accaaattgt taggatacaa gctaaaaagg aggggattac 300

tcccagagga gggaaattgc tttaaatca ggcagttccc tttcaaagta tctcacctca 360

gaatgaaggg taacacttaa tcaacatgct atactgatct gggaacacag tttttattat 420

aaagctgagt tgtttattac attttagttt cattgagatt tacttgataa aggttgaaat 480

tggaacaaaa aaagccttca tcttaaa atg gtt ttt tcc act ttg ttg aat tgt 534

Met Val Phe Ser Thr Leu Leu Asn Cys

1

5

tcc tat act caa aat tgc acc aag aca cct tgt ctc cca aat gca aaa 582

Ser Tyr Thr Gln Asn Cys Thr Lys Thr Pro Cys Leu Pro Asn Ala Lys

10

15

20

25

tgt gaa ata cgc aat gga att gaa gcc tgc tat tgc aac atg gga ttt 630

Cys Glu Ile Arg Asn Gly Ile Glu Ala Cys Tyr Cys Asn Met Gly Phe

30

35

40

tca gga aat ggt gtc aca att tgt gaa gat gat aat gaa tgt gga aat 678

Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu Cys Gly Asn

45

50

55

tta act cag tcc tgt ggc gaa aat gct aat tgc act aac aca gaa gga 726



Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn Thr Glu Gly

60

65

70

agt tat tat tgt atg tgt gta cct ggc ttc aga tcc agc agt aac caa 774

Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser Ser Asn Gln

75

80

85

gac agg ttt atc act aat gat gga acc gtc tgt ata gaa aat gtg aat 822

Asp Arg Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu Asn Val Asn

90

95

100

105

gca aac tgc cat tta gat aat gtc tgt ata gct gca aat att aat aaa 870

Ala Asn Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn Ile Asn Lys

110

115

120

act tta aca aaa atc aga tcc ata aaa gaa cct gtg gct ttg cta caa 918

Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala Leu Leu Gln

125

130

135

gaa gtc tat aga aat tct gtg aca gat ctt tca cca aca gat ata att 966

Glu Val Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr Asp Ile Ile

140

145

150

gca tat ata gaa ata tta gct gaa tca tct tca tta cta ggt tac aag 1014

Ala Tyr Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu Gly Tyr Lys

155

160

165

aac aac act atc tca gcc aag gac acc ctt tct aac tca act ctt act 1062

DI

Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser Thr Leu Thr  
 170 175 180 185

gaa ttt gta aaa acc gtg aat aat ttt gtt caa agg gat aca ttt gta 1110  
 Glu Phe Val Lys Thr Val Asn Asn Phe Val Gln Arg Asp Thr Phe Val  
 190 195 200

gtt tgg gac aag tta tct gtg aat cat agg aga aca cat ctt aca aaa 1158  
 Val Trp Asp Lys Leu Ser Val Asn His Arg Arg Thr His Leu Thr Lys  
 205 210 215

ctc atg cac act gtt gaa caa gct act tta agg ata tcc cag agc ttc 1206  
 Leu Met His Thr Val Glu Gln Ala Thr Leu Arg Ile Ser Gln Ser Phe  
 220 225 230

DI

caa aag acc aca gag ttt gat aca aat tca acg gat ata gct ctc aaa 1254  
 Gln Lys Thr Thr Glu Phe Asp Thr Asn Ser Thr Asp Ile Ala Leu Lys  
 235 240 245

gtt ttc ttt ttt gat tca tat aac atg aaa cat att cat cct cat atg 1302  
 Val Phe Phe Phe Asp Ser Tyr Asn Met Lys His Ile His Pro His Met  
 250 255 260 265

aat atg gat gga gac tac ata aat ata ttt cca aag aga aaa gct gca 1350  
 Asn Met Asp Gly Asp Tyr Ile Asn Ile Phe Pro Lys Arg Lys Ala Ala  
 270 275 280

tat gat tca aat ggc aat gtt gca gtt gca ttt gta tat tat aag agt 1398  
 Tyr Asp Ser Asn Gly Asn Val Ala Val Ala Phe Val Tyr Tyr Lys Ser

285	290	295	
att ggt cct ttg ctt tca tca tct gac aac ttc tta ttg aaa cct caa			1446
Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu Lys Pro Gln			
300	305	310	
aat tat gat aat tct gaa gag gag gaa aga gtc ata tct tca gta att			1494
Asn Tyr Asp Asn Ser Glu Glu Glu Glu Arg Val Ile Ser Ser Val Ile			
315	320	325	
tca gtc tca atg agc tca aac cca ccc aca tta tat gaa ctt gaa aaa			1542
Ser Val Ser Met Ser Ser Asn Pro Pro Thr Leu Tyr Glu Leu Glu Lys			
330	335	340	345
ata aca ttt aca tta agt cat cga aag gtc aca gat agg tat agg agt			1590
Ile Thr Phe Thr Leu Ser His Arg Lys Val Thr Asp Arg Tyr Arg Ser			
350	355	360	
cta tgt gca ttt tgg aat tac tca cct gat acc atg aat ggc agc tgg			1638
Leu Cys Ala Phe Trp Asn Tyr Ser Pro Asp Thr Met Asn Gly Ser Trp			
365	370	375	
tct tca gag ggc tgt gag ctg aca tac tca aat gag acc cac acc tca			1686
Ser Ser Glu Gly Cys Glu Leu Thr Tyr Ser Asn Glu Thr His Thr Ser			
380	385	390	
tgc cgc tgt aat cac ctg aca cat ttt gca att ttg atg tcc tct ggt			1734
Cys Arg Cys Asn His Leu Thr His Phe Ala Ile Leu Met Ser Ser Gly			

395

400

405

cct tcc att ggt att aaa gat tat aat att ctt aca agg atc act caa 1782

Pro Ser Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg Ile Thr Gln

410

415

420

425

cta gga ata att att tca ctg att tgt ctt gcc ata tgc att ttt acc 1830

Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Cys Ile Phe Thr

430

435

440

ttc tgg ttc ttc agt gaa att caa agc acc agg aca aca att cac aaa 1878

Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr Ile His Lys

445

450

455

aat ctt tgc tgt agc cta ttt ctt gct gaa ctt gtt ttt ctt gtt ggg 1926

Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu Val Gly

460

465

470

atc aat aca aat act aat aag ctc ttc tgt tca atc att gcc gga ctg 1974

Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile Ala Gly Leu

475

480

485

cta cac tac ttc ttt tta gct gct ttt gca tgg atg tgc att gaa ggc 2022

Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile Glu Gly

490

495

500

505

ata cat ctc tat ctc att gtt gtg ggt gtc atc tac aac aag gga ttt 2070

Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys Gly Phe

510

515

520

ttg cac aag aat ttt tat atc ttt ggc tat cta agc cca gcc gtg gta 2118  
 Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala Val Val

525

530

535

gtt gga ttt tcg gca gca cta gga tac aga tat tat ggc aca acc aaa 2166  
 Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly Thr Thr Lys

540

545

550

gta tgt tgg ctt agc acc gaa aac aac ttt att tgg agt ttt ata gga 2214  
 Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe Ile Gly

555

560

565

cca gca tgc cta atc att ctt gtt aat ctc ttg gct ttt gga gtc atc 2262  
 Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly Val Ile

570

575

580

585

ata tac aaa gtt ttt cgt cac act gca ggg ttg aaa cca gaa gtt agt 2310  
 Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu Val Ser

590

595

600

tgc ttt gag aac ata agg tct tgt gca aga gga gcc ctc gct ctt ctg 2358  
 Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala Leu Leu

605

610

615

ttc ctt ctc ggc acc acc tgg atc ttt ggg gtt ctc cat gtt gtg cac 2406  
 Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val Val His

620

625

630

gca tca gtg gtt aca gct tac ctc ttc aca gtc agc aat gct ttc cag 2454

Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala Phe Gln

635

640

645

ggg atg ttc att ttt tta ttc ctg tgt gtt tta tct aga aag att caa 2502

Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys Ile Gln

650

655

660

665

gaa gaa tat tac aga ttg ttc aaa aat gtc ccc tgt tgt ttt gga tgt 2550

Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe Gly Cys

670

675

680

DI tta agg taaacataga gaatggtgga taattacaac tgcacaaaaa taaaaattcc 2606

Leu Arg

aagctgtgga tgaccaatgt ataaaaatga ctcacaaat tatccaatta ttaactacta 2666

gacaaaaagt attttaaatac agtttttctg tttatgctat aggaactgta gataataagg 2726

taaaattatg tatcatatag atatactatg tttttctatg tgaaatagtt ctgtcaaaaa 2786

tagtattgca gatatttgga aagtaattgg tttctcagga gtgatatcac tgcacccaag 2846

gaaagatttt ctttct

2862

<210> 26

<211> 683

<212> PRT

<213> Homo sapiens

<400> 26

Met Val Phe Ser Thr Leu Leu Asn Cys Ser Tyr Thr Gln Asn Cys Thr  
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Lys Thr Pro Cys Leu Pro Asn Ala Lys Cys Glu Ile Arg Asn Gly Ile  
 20 25 30

Glu Ala Cys Tyr Cys Asn Met Gly Phe Ser Gly Asn Gly Val Thr Ile  
 35 40 45

Cys Glu Asp Asp Asn Glu Cys Gly Asn Leu Thr Gln Ser Cys Gly Glu  
 50 55 60

Asn Ala Asn Cys Thr Asn Thr Glu Gly Ser Tyr Tyr Cys Met Cys Val  
 65 70 75 80

Pro Gly Phe Arg Ser Ser Ser Asn Gln Asp Arg Phe Ile Thr Asn Asp  
 85 90 95

Gly Thr Val Cys Ile Glu Asn Val Asn Ala Asn Cys His Leu Asp Asn  
 100 105 110

Val Cys Ile Ala Ala Asn Ile Asn Lys Thr Leu Thr Lys Ile Arg Ser  
 115 120 125

Ile Lys Glu Pro Val Ala Leu Leu Gln Glu Val Tyr Arg Asn Ser Val  
 130 135 140

Thr Asp Leu Ser Pro Thr Asp Ile Ile Ala Tyr Ile Glu Ile Leu Ala  
 145 150 155 160

Glu Ser Ser Ser Leu Leu Gly Tyr Lys Asn Asn Thr Ile Ser Ala Lys

165

170

175

Asp Thr Leu Ser Asn Ser Thr Leu Thr Glu Phe Val Lys Thr Val Asn

180

185

190

Asn Phe Val Gln Arg Asp Thr Phe Val Val Trp Asp Lys Leu Ser Val

195

200

205

Asn His Arg Arg Thr His Leu Thr Lys Leu Met His Thr Val Glu Gln

210

215

220

Ala Thr Leu Arg Ile Ser Gln Ser Phe Gln Lys Thr Thr Glu Phe Asp

225

230

235

240

Thr Asn Ser Thr Asp Ile Ala Leu Lys Val Phe Phe Phe Asp Ser Tyr

245

250

255

Asn Met Lys His Ile His Pro His Met Asn Met Asp Gly Asp Tyr Ile

260

265

270

Asn Ile Phe Pro Lys Arg Lys Ala Ala Tyr Asp Ser Asn Gly Asn Val

275

280

285

Ala Val Ala Phe Val Tyr Tyr Lys Ser Ile Gly Pro Leu Leu Ser Ser

290

295

300



Ser Asp Asn Phe Leu Leu Lys Pro Gln Asn Tyr Asp Asn Ser Glu Glu  
305 310 315 320

Glu Glu Arg Val Ile Ser Ser Val Ile Ser Val Ser Met Ser Ser Asn  
325 330 335

Pro Pro Thr Leu Tyr Glu Leu Glu Lys Ile Thr Phe Thr Leu Ser His  
340 345 350

Arg Lys Val Thr Asp Arg Tyr Arg Ser Leu Cys Ala Phe Trp Asn Tyr  
355 360 365

DI Ser Pro Asp Thr Met Asn Gly Ser Trp Ser Ser Glu Gly Cys Glu Leu  
370 375 380

Thr Tyr Ser Asn Glu Thr His Thr Ser Cys Arg Cys Asn His Leu Thr  
385 390 395 400

His Phe Ala Ile Leu Met Ser Ser Gly Pro Ser Ile Gly Ile Lys Asp  
405 410 415

Tyr Asn Ile Leu Thr Arg Ile Thr Gln Leu Gly Ile Ile Ile Ser Leu  
420 425 430

Ile Cys Leu Ala Ile Cys Ile Phe Thr Phe Trp Phe Phe Ser Glu Ile  
435 440 445

Gln Ser Thr Arg Thr Thr Ile His Lys Asn Leu Cys Cys Ser Leu Phe  
450 455 460

Leu Ala Glu Leu Val Phe Leu Val Gly Ile Asn Thr Asn Thr Asn Lys

465

470

475

480

Leu Phe Cys Ser Ile Ile Ala Gly Leu Leu His Tyr Phe Phe Leu Ala

485

490

495

Ala Phe Ala Trp Met Cys Ile Glu Gly Ile His Leu Tyr Leu Ile Val

500

505

510

Val Gly Val Ile Tyr Asn Lys Gly Phe Leu His Lys Asn Phe Tyr Ile

515

520

525

Phe Gly Tyr Leu Ser Pro Ala Val Val Val Gly Phe Ser Ala Ala Leu

530

535

540

Gly Tyr Arg Tyr Tyr Gly Thr Thr Lys Val Cys Trp Leu Ser Thr Glu

545

550

555

560

Asn Asn Phe Ile Trp Ser Phe Ile Gly Pro Ala Cys Leu Ile Ile Leu

565

570

575

Val Asn Leu Leu Ala Phe Gly Val Ile Ile Tyr Lys Val Phe Arg His

580

585

590

Thr Ala Gly Leu Lys Pro Glu Val Ser Cys Phe Glu Asn Ile Arg Ser

595

600

605

Cys Ala Arg Gly Ala Leu Ala Leu Leu Phe Leu Leu Gly Thr Thr Trp

610

615

620

Ile Phe Gly Val Leu His Val Val His Ala Ser Val Val Thr Ala Tyr

625

630

635

640

Leu Phe Thr Val Ser Asn Ala Phe Gln Gly Met Phe Ile Phe Leu Phe

645

650

655

Leu Cys Val Leu Ser Arg Lys Ile Gln Glu Glu Tyr Tyr Arg Leu Phe

660

665

670

Lys Asn Val Pro Cys Cys Phe Gly Cys Leu Arg

675

680

>  
<210> 27  
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<212> DNA  
<213> Homo sapiens

<220>  
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<222> (520) .. (2454)

<400> 27  
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tagggctcga gcggctgccc gggcaggtca catttgtttg cctgattccc agctctctta 120

ggataggtct tcttgggaaa tgctttcatt tctaatacaa agaaaattgt gcaggcagcc 180

acgttaagat gtttttctga caataattgg ccaagatatt ccactgtgtc tcgaggccac 240

tctgaaaag aggaagtttg ttttctgtt gttctgacag gaagaggtgg atctacttca 300

tcaacatgca gtaccaaatt gttaggatac aagctaaaaa ggagggcatc cttccttgaa 360

tgtggggtag gaacctttcc gaagtgggga tcttatgacc tacaagtggg tttttccact 420

ttgttgaatt gttcctatac tcaaaattgc accaagacac cttgtctccc aaatgcaaaa 480

tgtgaaatac gcaatggaat tgaagcctgc tattgcaac atg gga ttt tca gga 534

Met Gly Phe Ser Gly

1 5

aat ggt gtc aca att tgt gaa gat gat aat gaa tgt gga aat tta act 582

Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu Cys Gly Asn Leu Thr

10 15 20

cag tcc tgt ggc gaa aat gct aat tgc act aac aca gaa gga agt tat 630

Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn Thr Glu Gly Ser Tyr

25 30 35

tat tgt atg tgt gta cct ggc ttc aga tcc agc agt aac caa gac agg 678

Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser Ser Asn Gln Asp Arg

40 45 50

ttt atc act aat gat gga acc gtc tgt ata gaa aat gtg aat gca aac 726

Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu Asn Val Asn Ala Asn

55 60 65

tgc cat tta gat aat gtc tgt ata gct gca aat att aat aaa act tta 774

Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn Ile Asn Lys Thr Leu

70

75

80

85

aca aaa atc aga tcc ata aaa gaa cct gtg gct ttg cta caa gaa gtc 822

Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala Leu Leu Gln Glu Val

90

95

100

tat aga aat tct gtg aca gat ctt tca cca aca gat ata att gca tat 870

Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr Asp Ile Ile Ala Tyr

105

110

115

ata gaa ata tta gct gaa tca tct tca tta cta ggt tac aag aac aac 918

Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu Gly Tyr Lys Asn Asn

120

125

130

act atc tca gcc aag gac acc ctt tct aac tca act ctt act gaa ttt 966

Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser Thr Leu Thr Glu Phe

135

140

145

gta aaa acc gtg aat aat ttt gtt caa agg gat aca ttt gta gtt tgg 1014

Val Lys Thr Val Asn Asn Phe Val Gln Arg Asp Thr Phe Val Val Trp

150

155

160

165

gac aag tta tct gtg aat cat agg aga aca cat ctt aca aaa ctc atg 1062

Asp Lys Leu Ser Val Asn His Arg Arg Thr His Leu Thr Lys Leu Met

170

175

180

cac act gtt gaa caa gct act tta agg ata tcc cag agc ttc caa aag 1110

His Thr Val Glu Gln Ala Thr Leu Arg Ile Ser Gln Ser Phe Gln Lys

185	190	195	
acc aca gag ttt gat aca aat tca acg gat ata gct ctc aaa gtt ttc			1158
Thr Thr Glu Phe Asp Thr Asn Ser Thr Asp Ile Ala Leu Lys Val Phe			
200	205	210	
ttt ttt gat tca tat aac atg aaa cat att cat cct cat atg aat atg			1206
Phe Phe Asp Ser Tyr Asn Met Lys His Ile His Pro His Met Asn Met			
215	220	225	
gat gga gac tac ata aat ata ttt cca aag aga aaa gct gca tat gat			1254
Asp Gly Asp Tyr Ile Asn Ile Phe Pro Lys Arg Lys Ala Ala Tyr Asp			
230	235	240	245
tca aat ggc aat gtt gca gtt gca ttt gta tat tat aag agt att ggt			1302
Ser Asn Gly Asn Val Ala Val Ala Phe Val Tyr Tyr Lys Ser Ile Gly			
250	255	260	
cct ttg ctt tca tca tct gac aac ttc tta ttg aaa cct caa aat tat			1350
Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu Lys Pro Gln Asn Tyr			
265	270	275	
gat aat tct gaa gag gag gaa aga gtc ata tct tca gta att tca gtc			1398
Asp Asn Ser Glu Glu Glu Glu Arg Val Ile Ser Ser Val Ile Ser Val			
280	285	290	
tca atg agc tca aac cca ccc aca tta tat gaa ctt gaa aaa ata aca			1446
Ser Met Ser Ser Asn Pro Pro Thr Leu Tyr Glu Leu Glu Lys Ile Thr			
295	300	305	

DI

ttt aca tta agt cat cga aag gtc aca gat agg tat agg agt cta tgt 1494

Phe Thr Leu Ser His Arg Lys Val Thr Asp Arg Tyr Arg Ser Leu Cys

310 315 320 325

gca ttt tgg aat tac tca cct gat acc atg aat ggc agc tgg tct tca 1542

Ala Phe Trp Asn Tyr Ser Pro Asp Thr Met Asn Gly Ser Trp Ser Ser

330 335 340

gag ggc tgt gag ctg aca tac tca aat gag acc cac acc tca tgc cgc 1590

Glu Gly Cys Glu Leu Thr Tyr Ser Asn Glu Thr His Thr Ser Cys Arg

345 350 355

D1 tgt aat cac ctg aca cat ttt gca att ttg atg tcc tct ggt cct tcc 1638

Cys Asn His Leu Thr His Phe Ala Ile Leu Met Ser Ser Gly Pro Ser

360 365 370

att ggt att aaa gat tat aat att ctt aca agg atc act caa cta gga 1686

Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg Ile Thr Gln Leu Gly

375 380 385

ata att att tca ctg att tgt ctt gcc ata tgc att ttt acc ttc tgg 1734

Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Cys Ile Phe Thr Phe Trp

390 395 400 405

ttc ttc agt gaa att caa agc acc agg aca aca att cac aaa aat ctt 1782

Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr Ile His Lys Asn Leu

410 415 420

tgc tgt agc cta ttt ctt gct gaa ctt gtt ttt ctt gtt ggg atc aat 1830  
Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu Val Gly Ile Asn

425

430

435

aca aat act aat aag ctc ttc tgt tca atc att gcc gga ctg cta cac 1878  
Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile Ala Gly Leu Leu His

440

445

450

tac ttc ttt tta gct gct ttt gca tgg atg tgc att gaa ggc ata cat 1926  
Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile Glu Gly Ile His

455

460

465

ctc tat ctc att gtt gtg ggt gtc atc tac aac aag gga ttt ttg cac 1974  
Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys Gly Phe Leu His

470

475

480

485

aag aat ttt tat atc ttt ggc tat cta agc cca gcc gtg gta gtt gga 2022  
Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala Val Val Val Gly

490

495

500

ttt tcg gca gca cta gga tac aga tat tat ggc aca acc aaa gta tgt 2070  
Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly Thr Thr Lys Val Cys

505

510

515

tgg ctt agc acc gaa aac aac ttt att tgg agt ttt ata gga cca gca 2118  
Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe Ile Gly Pro Ala

520

525

530



tgc cta atc att ctt gtt aat ctc ttg gct ttt gga gtc atc ata tac 2166  
Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly Val Ile Ile Tyr

535

540

545

aaa gtt ttt cgt cac act gca ggg ttg aaa cca gaa gtt agt tgc ttt 2214  
Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu Val Ser Cys Phe

550

555

560

565

gag aac ata agg tct tgt gca aga gga gcc ctc gct ctt ctg ttc ctt 2262  
Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala Leu Leu Phe Leu

570

575

580

ctc ggc acc acc tgg atc ttt ggg gtt ctc cat gtt gtg cac gca tca 2310  
Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val Val His Ala Ser

585

590

595

gtg gtt aca gct tac ctc ttc aca gtc agc aat gct ttc cag ggg atg 2358  
Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala Phe Gln Gly Met

600

605

610

ttc att ttt tta ttc ctg tgt gtt tta tct aga aag att caa gaa gaa 2406  
Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys Ile Gln Glu Glu

615

620

625

tat tac aga ttg ttc aaa aat gtc ccc tgt tgt ttt gga tgt tta agg 2454  
Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe Gly Cys Leu Arg

630

635

640

645

taaacataga gaatggtgga taattacaac tgcacaaaaa taaaaattcc aagctgtgga 2514

tgaccaatgt ataaaaatga ctcatcaaat tatccaatta ttaactacta gacaaaaagt 2574

attttaaatc agtttttctg tttatgctat aggaactgta gataataagg taaaattatg 2634

tatcatatag atatactatg tttttctatg tgaaatagtt ctgtcaaaaa tagtattgca 2694

gatatttgga aagtaattgg tttctcagga gtgatatcac tgcaccaag gaaagatttt 2754

ctttct 2760

<210> 28

<211> 645

<212> PRT

<213> Homo sapiens

<400> 28

Met Gly Phe Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu

1

5

10

15

Cys Gly Asn Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn

20

25

30

Thr Glu Gly Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser

35

40

45

Ser Asn Gln Asp Arg Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu

50

55

60

Asn Val Asn Ala Asn Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn

65

70

75

80

Ile Asn Lys Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala

85

90

95

Leu Leu Gln Glu Val Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr

100

105

110

Asp Ile Ile Ala Tyr Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu

115

120

125

Gly Tyr Lys Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser

130

135

140

Thr Leu Thr Glu Phe Val Lys Thr Val Asn Asn Phe Val Gln Arg Asp

145

150

155

160

DI Thr Phe Val Val Trp Asp Lys Leu Ser Val Asn His Arg Arg Thr His

165

170

175

Leu Thr Lys Leu Met His Thr Val Glu Gln Ala Thr Leu Arg Ile Ser

180

185

190

Gln Ser Phe Gln Lys Thr Thr Glu Phe Asp Thr Asn Ser Thr Asp Ile

195

200

205

Ala Leu Lys Val Phe Phe Phe Asp Ser Tyr Asn Met Lys His Ile His

210

215

220

Pro His Met Asn Met Asp Gly Asp Tyr Ile Asn Ile Phe Pro Lys Arg

225                                      230                                      235                                      240  
 Lys Ala Ala Tyr Asp Ser Asn Gly Asn Val Ala Val Ala Phe Val Tyr  
    245                                      250                                      255  
 Tyr Lys Ser Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu  
    260                                      265                                      270  
 Lys Pro Gln Asn Tyr Asp Asn Ser Glu Glu Glu Glu Arg Val Ile Ser  
    275                                      280                                      285  
 Ser Val Ile Ser Val Ser Met Ser Ser Asn Pro Pro Thr Leu Tyr Glu  
    290                                      295                                      300  
 Leu Glu Lys Ile Thr Phe Thr Leu Ser His Arg Lys Val Thr Asp Arg  
 305                                      310                                      315                                      320  
 Tyr Arg Ser Leu Cys Ala Phe Trp Asn Tyr Ser Pro Asp Thr Met Asn  
    325                                      330                                      335  
 Gly Ser Trp Ser Ser Glu Gly Cys Glu Leu Thr Tyr Ser Asn Glu Thr  
    340                                      345                                      350  
 His Thr Ser Cys Arg Cys Asn His Leu Thr His Phe Ala Ile Leu Met  
    355                                      360                                      365  
 Ser Ser Gly Pro Ser Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg  
    370                                      375                                      380

DI

Ile Thr Gln Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Cys

385

390

395

400

Ile Phe Thr Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr

405

410

415

Ile His Lys Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe

420

425

430

Leu Val Gly Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile

435

440

445

Ala Gly Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys

450

455

460

Ile Glu Gly Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn

465

470

475

480

Lys Gly Phe Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro

485

490

495

Ala Val Val Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly

500

505

510

Thr Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser

515

520

525

Phe Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe

530

535

540

Gly Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro

545

550

555

560

Glu Val Ser Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu

565

570

575

Ala Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His

580

585

590

Val Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn

595

600

605

Ala Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg

610

615

620

Lys Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys

625

630

635

640

Phe Gly Cys Leu Arg

645

&lt;210&gt; 29

&lt;211&gt; 727

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (312)..(560)

&lt;220&gt;

&lt;221&gt; variation

&lt;222&gt; (324)

<223> where n can be any nucleotide

<400> 29

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caagtctctg atataaaatg acccagtaca gtcaaccttg catatctgca gatacagaac 120

ccactgactg tgttttcaca gaatagctta ttgtaagttt tctagaactg aacctggatg 180

tgcattctggc acagtgtgat gctggattct gtgtctcat tagtctaacg agtctactct 240

gttgcccaca tcacctccca ttaggaccac tatgcccttt taaaaagtgg tctttataag 300

atgtaagtat t atg aca ccc ttc ntg cat aca act att caa tgg ctt ttg 350

Met Thr Pro Phe Xaa His Thr Thr Ile Gln Trp Leu Leu

1

5

10

att agc ctt agg ata aaa atc ccg tcc tgc cgc acc gac ttg tcc atc 398

Ile Ser Leu Arg Ile Lys Ile Pro Ser Cys Arg Thr Asp Leu Ser Ile

15

20

25

ttg tgg gta gcc act tgt tac tac ctc tot cag tgt cct tcc cag aca 446

Leu Trp Val Ala Thr Cys Tyr Tyr Leu Ser Gln Cys Pro Ser Gln Thr

30

35

40

45

tgc tgc ttc cac tcc tct ccc ctc aga tcc ccg ttt tgc tta gtt act 494

Cys Cys Phe His Ser Ser Pro Leu Arg Ser Pro Phe Cys Leu Val Thr

50

55

60

tcc tcc tca tct ttc agg tct caa agt agt tgt ccc ttc act gaa tgc 542

Ser Ser Ser Ser Phe Arg Ser Gln Ser Ser Cys Pro Phe Thr Glu Cys

65

70

75

acc gac aac ctg gcc cag taaagttact ttgtcgtctg cgcccaaata

590

Thr Asp Asn Leu Ala Gln

80

atcctaccct tccatctgct acattcctta aatctgcaat cccttggtca aagcctgcaa 650

aagagcatga gctccttgaa gcaaagacag tattagtcac ttttaatgta aagtataaaa 710

aaaaaaaaa aaaaaaa

727

<210> 30

<211> 83

<212> PRT

<213> Homo sapiens

<220>

<221> variant

<222> (5)

<223> where Xaa can any amino acid

<400> 30

Met Thr Pro Phe Xaa His Thr Thr Ile Gln Trp Leu Leu Ile Ser Leu

1

5

10

15

Arg Ile Lys Ile Pro Ser Cys Arg Thr Asp Leu Ser Ile Leu Trp Val

20

25

30

Ala Thr Cys Tyr Tyr Leu Ser Gln Cys Pro Ser Gln Thr Cys Cys Phe

35

40

45

His Ser Ser Pro Leu Arg Ser Pro Phe Cys Leu Val Thr Ser Ser Ser



50

55

60

Ser Phe Arg Ser Gln Ser Ser Cys Pro Phe Thr Glu Cys Thr Asp Asn

65

70

75

80

Leu Ala Gln

&lt;210&gt; 31

&lt;211&gt; 2741

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (288) .. (2021)

&lt;400&gt; 31

caattgactt gatatgattt attatatttta ctacttataa gaatggaaat aagttctcct 60

tagttttttt cttggagaaa gtctgacatg tgaggcacag atgagttatt aaaggcagat 120

gactttccag ccttgtctta aatgttccat tctttacctt agaaattatt taaatttggtg 180

tcctgtccca gagcatccgc aagggcgcag ccagtggtt tggagtcagc ggcgactggg 240

aggggcagcg gcagcagtg ggcgcgcgca gcctgcacca ctgcagc atg cgc tac 296

Met Arg Tyr

1

ggc cgc ctg aag gcc tcg tgc cag cgt gac ctg gag ctc ccc agc cag 344

Gly Arg Leu Lys Ala Ser Cys Gln Arg Asp Leu Glu Leu Pro Ser Gln

5

10

15

gag gca ccg tcc ttc cag ggc act gag tcc cca aag ccc tgc aag atg 392

Glu Ala Pro Ser Phe Gln Gly Thr Glu Ser Pro Lys Pro Cys Lys Met  
 20 25 30 35

ccc aag att gtg gat ccg ctg gcc cgg ggc cgg gcc ttc cgc cac ccg 440  
 Pro Lys Ile Val Asp Pro Leu Ala Arg Gly Arg Ala Phe Arg His Pro  
 40 45 50

gag gag atg gac agg ccc cac gcc ctg cac cca ccg ctg acc ccc gga 488  
 Glu Glu Met Asp Arg Pro His Ala Leu His Pro Pro Leu Thr Pro Gly  
 55 60 65

gtc ctg tcc ctc acc tcc ttc acc agt gtc cgt tct ggc tac tcc cac 536  
 Val Leu Ser Leu Thr Ser Phe Thr Ser Val Arg Ser Gly Tyr Ser His  
 70 75 80

DI ctg cca cgc cgc aag aga atg tct gtg gcc cac atg agc ttg caa gct 584  
 Leu Pro Arg Arg Lys Arg Met Ser Val Ala His Met Ser Leu Gln Ala  
 85 90 95

gcc gct gcc ctc ctc aag ggg cgc tcg gtg ctg gat gcc acc gga cag 632  
 Ala Ala Ala Leu Leu Lys Gly Arg Ser Val Leu Asp Ala Thr Gly Gln  
 100 105 110 115

cgg tgc cgg gtg gtc aag cgc agc ttt gcc ttc ccg agc ttc ctg gag 680  
 Arg Cys Arg Val Val Lys Arg Ser Phe Ala Phe Pro Ser Phe Leu Glu  
 120 125 130

gag gat gtg gtc gat ggg gca gac acg ttt gac tcc tcc ttt ttt agt 728

Glu Asp Val Val Asp Gly Ala Asp Thr Phe Asp Ser Ser Phe Phe Ser

135

140

145

aag gaa gaa atg agc tcc atg cct gat gat gtc ttt gag tcc ccc cca 776

Lys Glu Glu Met Ser Ser Met Pro Asp Asp Val Phe Glu Ser Pro Pro

150

155

160

ctc tct gcc agc tac ttc cga ggg atc cca cac tca gcc tcc cct gtc 824

Leu Ser Ala Ser Tyr Phe Arg Gly Ile Pro His Ser Ala Ser Pro Val

165

170

175

tcc ccc gat ggg gtg caa atc cct ctg aag gag tat ggc cga gcc cca 872

Ser Pro Asp Gly Val Gln Ile Pro Leu Lys Glu Tyr Gly Arg Ala Pro

180

185

190

195

gtc ccc ggg ccc cgg cgc ggc aag cgc atc gcc tcc aag gtg aag cac 920

Val Pro Gly Pro Arg Arg Gly Lys Arg Ile Ala Ser Lys Val Lys His

200

205

210

ttt gcc ttt gat cgg aag aag cgg cac tac ggc ctc ggc gtg gtg ggc 968

Phe Ala Phe Asp Arg Lys Lys Arg His Tyr Gly Leu Gly Val Val Gly

215

220

225

aac tgg ctg aac cgc agc tac cgc cgc agc atc agc agc act gtg cag 1016

Asn Trp Leu Asn Arg Ser Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln

230

235

240

cgg cag ctg gag agc ttc gac agc cac cgg ccc tac ttc acc tac tgg 1064

Arg Gln Leu Glu Ser Phe Asp Ser His Arg Pro Tyr Phe Thr Tyr Trp

245                      250                      255  
 ctg acc ttc gtc cat gtc atc atc acg ctg ctg gtg att tgc acg tat 1112  
 Leu Thr Phe Val His Val Ile Ile Thr Leu Leu Val Ile Cys Thr Tyr  
 260                      265                      270                      275  
 ggc atc gca ccc gtg ggc ttt gcc cag cac gtc acc acc cag ctg gtg 1160  
 Gly Ile Ala Pro Val Gly Phe Ala Gln His Val Thr Thr Gln Leu Val  
 280                      285                      290  
 ctg cgg aac aaa ggt gtg tac gag agc gtg aag tac atc cag cag gag 1208  
 Leu Arg Asn Lys Gly Val Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu  
 295                      300                      305  
 DI aac ttc tgg gtt ggc ccc agc tcg att gac ctg atc cac ctg ggg gcc 1256  
 Asn Phe Trp Val Gly Pro Ser Ser Ile Asp Leu Ile His Leu Gly Ala  
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 aag ttc tca ccc tgc atc cgg aag gac ggg cag atc gag cag ctg gtg 1304  
 Lys Phe Ser Pro Cys Ile Arg Lys Asp Gly Gln Ile Glu Gln Leu Val  
 325                      330                      335  
 ctg cgc gag cga gac ctg gag cgg gac tca ggc tgc tgt gtc cag aat 1352  
 Leu Arg Glu Arg Asp Leu Glu Arg Asp Ser Gly Cys Cys Val Gln Asn  
 340                      345                      350                      355  
 gac cac tcc ggc tgc atc cag acc cag cgg aag gac tgc tcg gag act 1400  
 Asp His Ser Gly Cys Ile Gln Thr Gln Arg Lys Asp Cys Ser Glu Thr

360	365	370	
ttg gcc act ttt gtc aag tgg cag gat gac act ggg ccc ccc atg gac	1448		
Leu Ala Thr Phe Val Lys Trp Gln Asp Asp Thr Gly Pro Pro Met Asp			
375	380	385	
aag tct gat ctg ggc cag aag cgg act tcg ggg gct gtc tgc cac cag	1496		
Lys Ser Asp Leu Gly Gln Lys Arg Thr Ser Gly Ala Val Cys His Gln			
390	395	400	
gac ccc agg acc tgc gag gag cca gcc tcc agc ggt gcc cac atc tgg	1544		
Asp Pro Arg Thr Cys Glu Glu Pro Ala Ser Ser Gly Ala His Ile Trp			
405	410	415	
ccc gat gac atc act aag tgg ccg atc tgc aca gag cag gcc agg agc	1592		
Pro Asp Asp Ile Thr Lys Trp Pro Ile Cys Thr Glu Gln Ala Arg Ser			
420	425	430	435
aac cac aca ggc ttc ctg cac atg gac tgc gag atc aag ggc cgc ccc	1640		
Asn His Thr Gly Phe Leu His Met Asp Cys Glu Ile Lys Gly Arg Pro			
440	445	450	
tgc tgc atc ggc acc aag ggc agc tgt gag atc acc acc cgg gaa tac	1688		
Cys Cys Ile Gly Thr Lys Gly Ser Cys Glu Ile Thr Thr Arg Glu Tyr			
455	460	465	
tgt gag ttc atg cac ggc tat ttc cat gag gaa gca aca ctc tgc tcc	1736		
Cys Glu Phe Met His Gly Tyr Phe His Glu Glu Ala Thr Leu Cys Ser			
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Gln Val Arg Arg Gly Arg Pro Gly Val Val Glu Glu Arg Thr Leu Gly

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atg gca gcc tgc tgg ggc cgg ggc tca cgc act ccc tcc cat gtc gga 1832  
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gcc tca gac tca gcc tgc ttc tgg ggc gct gag cac cat atg ccc act 1880  
Ala Ser Asp Ser Ala Cys Phe Trp Gly Ala Glu His His Met Pro Thr

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ccc agg tgc act gct tgg aca agg tgt gtg ggc tgc tgc cct tcc tca 1928  
Pro Arg Cys Thr Ala Trp Thr Arg Cys Val Gly Cys Cys Pro Ser Ser

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acc ctg agg tcc cag atc agt tct aca ggc tct ggc tgt ctc tct tcc 1976  
Thr Leu Arg Ser Gln Ile Ser Ser Thr Gly Ser Gly Cys Leu Ser Ser

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tac atg ctg gcg tgg tgc act gcc tcg tgt ctg tgg tct ttc aaa 2021  
Tyr Met Leu Ala Trp Cys Thr Ala Ser Cys Leu Trp Ser Phe Lys

565

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tgaccatcct gagggacctg gagaagctgg ccggctggca ccgtatcgcc atcatcttca 2081

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cctctgcaga gcgctctctg tgtgccagag agccagagac ccaagacagg gcccgggctc 2681

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35

40

45

Arg His Pro Glu Glu Met Asp Arg Pro His Ala Leu His Pro Pro Leu

50

55

60

Thr Pro Gly Val Leu Ser Leu Thr Ser Phe Thr Ser Val Arg Ser Gly

65

70

75

80

Tyr Ser His Leu Pro Arg Arg Lys Arg Met Ser Val Ala His Met Ser

85

90

95

Leu Gln Ala Ala Ala Ala Leu Leu Lys Gly Arg Ser Val Leu Asp Ala

100

105

110

Thr Gly Gln Arg Cys Arg Val Val Lys Arg Ser Phe Ala Phe Pro Ser

115

120

125

Phe Leu Glu Glu Asp Val Val Asp Gly Ala Asp Thr Phe Asp Ser Ser

130

135

140

Phe Phe Ser Lys Glu Glu Met Ser Ser Met Pro Asp Asp Val Phe Glu

145

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155

160

Ser Pro Pro Leu Ser Ala Ser Tyr Phe Arg Gly Ile Pro His Ser Ala

165

170

175

Ser Pro Val Ser Pro Asp Gly Val Gln Ile Pro Leu Lys Glu Tyr Gly



180 185 190  
 Arg Ala Pro Val Pro Gly Pro Arg Arg Gly Lys Arg Ile Ala Ser Lys  
 195 200 205  
 Val Lys His Phe Ala Phe Asp Arg Lys Lys Arg His Tyr Gly Leu Gly  
 210 215 220  
 Val Val Gly Asn Trp Leu Asn Arg Ser Tyr Arg Arg Ser Ile Ser Ser  
 225 230 235 240  
 Thr Val Gln Arg Gln Leu Glu Ser Phe Asp Ser His Arg Pro Tyr Phe  
 245 250 255  
 DI  
 Thr Tyr Trp Leu Thr Phe Val His Val Ile Ile Thr Leu Leu Val Ile  
 260 265 270  
 Cys Thr Tyr Gly Ile Ala Pro Val Gly Phe Ala Gln His Val Thr Thr  
 275 280 285  
 Gln Leu Val Leu Arg Asn Lys Gly Val Tyr Glu Ser Val Lys Tyr Ile  
 290 295 300  
 Gln Gln Glu Asn Phe Trp Val Gly Pro Ser Ser Ile Asp Leu Ile His  
 305 310 315 320  
 Leu Gly Ala Lys Phe Ser Pro Cys Ile Arg Lys Asp Gly Gln Ile Glu  
 325 330 335

Gln Leu Val Leu Arg Glu Arg Asp Leu Glu Arg Asp Ser Gly Cys Cys

340

345

350

Val Gln Asn Asp His Ser Gly Cys Ile Gln Thr Gln Arg Lys Asp Cys

355

360

365

Ser Glu Thr Leu Ala Thr Phe Val Lys Trp Gln Asp Asp Thr Gly Pro

370

375

380

Pro Met Asp Lys Ser Asp Leu Gly Gln Lys Arg Thr Ser Gly Ala Val

385

390

395

400

Cys His Gln Asp Pro Arg Thr Cys Glu Glu Pro Ala Ser Ser Gly Ala

405

410

415

His Ile Trp Pro Asp Asp Ile Thr Lys Trp Pro Ile Cys Thr Glu Gln

420

425

430

Ala Arg Ser Asn His Thr Gly Phe Leu His Met Asp Cys Glu Ile Lys

435

440

445

Gly Arg Pro Cys Cys Ile Gly Thr Lys Gly Ser Cys Glu Ile Thr Thr

450

455

460

Arg Glu Tyr Cys Glu Phe Met His Gly Tyr Phe His Glu Glu Ala Thr

465

470

475

480

Leu Cys Ser Gln Val Arg Arg Gly Arg Pro Gly Val Val Glu Glu Arg

485

490

495

Thr Leu Gly Met Ala Ala Cys Trp Gly Arg Gly Ser Arg Thr Pro Ser

500

505

510

His Val Gly Ala Ser Asp Ser Ala Cys Phe Trp Gly Ala Glu His His

515

520

525

Met Pro Thr Pro Arg Cys Thr Ala Trp Thr Arg Cys Val Gly Cys Cys

530

535

540

Pro Ser Ser Thr Leu Arg Ser Gln Ile Ser Ser Thr Gly Ser Gly Cys

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555

560

Leu Ser Ser Tyr Met Leu Ala Trp Cys Thr Ala Ser Cys Leu Trp Ser

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570

575

Phe Lys

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&lt;211&gt; 2596

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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&lt;400&gt; 33

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tgactttcca gccttgtctt aaatgttcca ttctttacct tagaaattat ttaaatttgt 180

gtcctgtccc agagcatccg caagggcgca gccagtggt ttggagtcag cggcgactgg 240

gaggggcagc ggcagcagtg gcagcgccgc agcctgcacc actgcagc atg cgc tac 297

Met Arg Tyr

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ggc cgc ctg aag gcc tcg tgc cag cgt gac ctg gag ctc ccc agc cag 345

Gly Arg Leu Lys Ala Ser Cys Gln Arg Asp Leu Glu Leu Pro Ser Gln

5

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15

gag gca ccg tcc ttc cag ggc act gag tcc cca aag ccc tgc aag atg 393

Glu Ala Pro Ser Phe Gln Gly Thr Glu Ser Pro Lys Pro Cys Lys Met

20

25

30

35

ccc aag att gtg gat ccg ctg gcc cgg ggc cgg gcc ttc cgc cac ccg 441

Pro Lys Ile Val Asp Pro Leu Ala Arg Gly Arg Ala Phe Arg His Pro

40

45

50

gag gag atg gac agg ccc cac gcc ctg cac cca ccg ctg acc ccc gga 489

Glu Glu Met Asp Arg Pro His Ala Leu His Pro Pro Leu Thr Pro Gly

55

60

65

gtc ctg tcc ctc acc tcc ttc acc agt gtc cgt tct ggc tac tcc cac 537

Val Leu Ser Leu Thr Ser Phe Thr Ser Val Arg Ser Gly Tyr Ser His

70

75

80

ctg cca cgc cgc aag aga atg tct gtg gcc cac atg agc ttg caa gct 585

Leu Pro Arg Arg Lys Arg Met Ser Val Ala His Met Ser Leu Gln Ala

85

90

95

gcc gct gcc ctc ctc aag ggg cgc tcg gtg ctg gat gcc acc gga cag 633

Ala Ala Ala Leu Leu Lys Gly Arg Ser Val Leu Asp Ala Thr Gly Gln

100

105

110

115

cgg tgc cgg gtg gtc aag cgc agc ttt gcc ttc ccg agc ttc ctg gag 681

Arg Cys Arg Val Val Lys Arg Ser Phe Ala Phe Pro Ser Phe Leu Glu

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gag gat gtg gtc gat ggg gca gac acg ttt gac tcc tcc ttt ttt agt 729

Glu Asp Val Val Asp Gly Ala Asp Thr Phe Asp Ser Ser Phe Phe Ser

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aag gaa gaa atg agc tcc atg cct gat gat gtc ttt gag tcc ccc cca 777

Lys Glu Glu Met Ser Ser Met Pro Asp Asp Val Phe Glu Ser Pro Pro

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ctc tct gcc agc tac ttc cga ggg atc cca cac tca gcc tcc cct gtc 825

Leu Ser Ala Ser Tyr Phe Arg Gly Ile Pro His Ser Ala Ser Pro Val

165

170

175

tcc ccc gat ggg gtg caa atc cct ctg aag gag tat ggc cga gcc cca 873

Ser Pro Asp Gly Val Gln Ile Pro Leu Lys Glu Tyr Gly Arg Ala Pro

180

185

190

195

gtc ccc ggg ccc cgg cgc ggc aag cgc atc gcc tcc aag gtg aag cac 921

Val Pro Gly Pro Arg Arg Gly Lys Arg Ile Ala Ser Lys Val Lys His

200

205

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ttt gcc ttt gat cgg aag aag cgg cac tac ggc ctc ggc gtg gtg ggc 969

Phe Ala Phe Asp Arg Lys Lys Arg His Tyr Gly Leu Gly Val Val Gly

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220

225

aac tgg ctg aac cgc agc tac cgc cgc agc atc agc agc act gtg cag 1017

Asn Trp Leu Asn Arg Ser Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln

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235

240

cgg cag ctg gag agc ttc gac agc cac cgg ccc tac ttc acc tac tgg 1065

Arg Gln Leu Glu Ser Phe Asp Ser His Arg Pro Tyr Phe Thr Tyr Trp

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255

ctg acc ttc gtc cat gtc atc atc acg ctg ctg gtg att tgc acg tat 1113

Leu Thr Phe Val His Val Ile Ile Thr Leu Leu Val Ile Cys Thr Tyr

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270

275

ggc atc gca ccc gtg ggc ttt gcc cag cac gtc acc acc cag ctg gtg 1161

Gly Ile Ala Pro Val Gly Phe Ala Gln His Val Thr Thr Gln Leu Val

280

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290

ctg cgg aac aaa ggt gtg tac gag agc gtg aag tac atc cag cag gag 1209

Leu Arg Asn Lys Gly Val Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu

295

300

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aac ttc tgg gtt ggc ccc agc tcg att gac ctg atc cac ctg ggg gcc 1257

Asn Phe Trp Val Gly Pro Ser Ser Ile Asp Leu Ile His Leu Gly Ala

310 315 320  
 aag ttc tca ccc tgc atc cgg aag gac ggg cag atc gag cag ctg gtg 1305  
 Lys Phe Ser Pro Cys Ile Arg Lys Asp Gly Gln Ile Glu Gln Leu Val  
 325 330 335  
 ctg cgc gag cga gac ctg gag cgg gac tca ggc tgc tgt gtc cag aat 1353  
 Leu Arg Glu Arg Asp Leu Glu Arg Asp Ser Gly Cys Cys Val Gln Asn  
 340 345 350 355  
 gac cac tcc ggc tgc atc cag acc cag cgg aag gac tgc tcg gag act 1401  
 Asp His Ser Gly Cys Ile Gln Thr Gln Arg Lys Asp Cys Ser Glu Thr  
 360 365 370  
 D1 ttg gcc act ttt gtc aag tgg cag gat gac act ggg ccc ccc atg gac 1449  
 Leu Ala Thr Phe Val Lys Trp Gln Asp Asp Thr Gly Pro Pro Met Asp  
 375 380 385  
 aag tct gat ctg ggc cag aag cgg act tcg ggg gct gtc tgc cac cag 1497  
 Lys Ser Asp Leu Gly Gln Lys Arg Thr Ser Gly Ala Val Cys His Gln  
 390 395 400  
 gac ccc agg acc tgc gag gag cca gcc tcc agc ggt gcc cac atc tgg 1545  
 Asp Pro Arg Thr Cys Glu Glu Pro Ala Ser Ser Gly Ala His Ile Trp  
 405 410 415  
 ccc gat gac atc act aag tgg ccg atc tgc aca gag cag gcc agg agc 1593  
 Pro Asp Asp Ile Thr Lys Trp Pro Ile Cys Thr Glu Gln Ala Arg Ser

420                      425                      430                      435  
 aac cac aca ggc ttc ctg cac atg gac tgc gag atc aag ggc cgc ccc 1641  
 Asn His Thr Gly Phe Leu His Met Asp Cys Glu Ile Lys Gly Arg Pro  
                     440                      445                      450  
 tgc tgc atc ggc acc aag ggc agc tgt gag atc acc acc cgg gaa tac 1689  
 Cys Cys Ile Gly Thr Lys Gly Ser Cys Glu Ile Thr Thr Arg Glu Tyr  
                     455                      460                      465  
 tgt gag ttc atg cac ggc tat ttc cat gag gaa gca aca ctc tgc tcc 1737  
 Cys Glu Phe Met His Gly Tyr Phe His Glu Glu Ala Thr Leu Cys Ser  
                     470                      475                      480  
 cag gtg cac tgc ttg gac aag gtg tgt ggg ctg ctg ccc ttc ctc aac 1785  
 Gln Val His Cys Leu Asp Lys Val Cys Gly Leu Leu Pro Phe Leu Asn  
                     485                      490                      495  
 cct gag gtc cca gat cag ttc tac agg ctc tgg ctg tct ctc ttc cta 1833  
 Pro Glu Val Pro Asp Gln Phe Tyr Arg Leu Trp Leu Ser Leu Phe Leu  
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 cat gct ggc gtg gtg cac tgc ctc gtg tct gtg gtc ttt caa atg acc 1881  
 His Ala Gly Val Val His Cys Leu Val Ser Val Val Phe Gln Met Thr  
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 atc ctg agg gac ctg gag aag ctg gcc ggc tgg cac cgt atc gcc atc 1929  
 Ile Leu Arg Asp Leu Glu Lys Leu Ala Gly Trp His Arg Ile Ala Ile  
                     535                      540                      545



atc ttc atc ctc agt ggc atc aca ggc aac ctc gcc agt acc atc ttt 1977  
 Ile Phe Ile Leu Ser Gly Ile Thr Gly Asn Leu Ala Ser Thr Ile Phe

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555

560

ctc cca tac cgg gca gag gtg ggc ccg gcc ggc tca cag ttc ggc ctc 2025  
 Leu Pro Tyr Arg Ala Glu Val Gly Pro Ala Gly Ser Gln Phe Gly Leu

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ctc gcc tgc ctc ttc gtg gag ctc ttc cag agc tgg ccg ctg ctg gag 2073  
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580

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agg ccc tgg aag gcc ttc ctc aac ctc tcg acc atc gtg ctc ttc ctg 2121  
 Arg Pro Trp Lys Ala Phe Leu Asn Leu Ser Thr Ile Val Leu Phe Leu

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610

ttc atc tgt ggc ctc ctg ccc tgg atc gac aac atc gcc cac atc ttc 2169  
 Phe Ile Cys Gly Leu Leu Pro Trp Ile Asp Asn Ile Ala His Ile Phe

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620

625

ggc ttc ctc agt ggc ctg ctg ctg gcc ttc gcc ttc ctg ccc tac atc 2217  
 Gly Phe Leu Ser Gly Leu Leu Leu Ala Phe Ala Phe Leu Pro Tyr Ile

630

635

640

acc ttc ggc acc agc gac aag tac cgc aag cgg gca ctc atc ctg gtg 2265  
 Thr Phe Gly Thr Ser Asp Lys Tyr Arg Lys Arg Ala Leu Ile Leu Val

645

650

655

tca ctg ctg gcc ttt gcc ggc ctc ttc gcc gcc ctc gtg ctg tgg ctg 2313

Ser Leu Leu Ala Phe Ala Gly Leu Phe Ala Ala Leu Val Leu Trp Leu

660 665 670 675

tac atc tac ccc att aac tgg ccc tgg atc gag cac ctc acc tgc ttc 2361

Tyr Ile Tyr Pro Ile Asn Trp Pro Trp Ile Glu His Leu Thr Cys Phe

680 685 690

ccc ttc acc agc cgc ttc tgc gag aag tat gag ctg gac cag gtg ctg 2409

Pro Phe Thr Ser Arg Phe Cys Glu Lys Tyr Glu Leu Asp Gln Val Leu

695 700 705

cac tgaccgctgg gccacacggc tgcccctcag ccctgctgga acagggctctg 2462

His

cctgcgaggg ctgccctctg cagagcgctc tctgtgtgcc agagagccag agaccaaga 2522

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 35 40 45  
 Arg His Pro Glu Glu Met Asp Arg Pro His Ala Leu His Pro Pro Leu  
 50 55 60  
 Thr Pro Gly Val Leu Ser Leu Thr Ser Phe Thr Ser Val Arg Ser Gly  
 65 70 75 80  
 Tyr Ser His Leu Pro Arg Arg Lys Arg Met Ser Val Ala His Met Ser  
 85 90 95  
 D1 Leu Gln Ala Ala Ala Ala Leu Leu Lys Gly Arg Ser Val Leu Asp Ala  
 100 105 110  
 Thr Gly Gln Arg Cys Arg Val Val Lys Arg Ser Phe Ala Phe Pro Ser  
 115 120 125  
 Phe Leu Glu Glu Asp Val Val Asp Gly Ala Asp Thr Phe Asp Ser Ser  
 130 135 140  
 Phe Phe Ser Lys Glu Glu Met Ser Ser Met Pro Asp Asp Val Phe Glu  
 145 150 155 160  
 Ser Pro Pro Leu Ser Ala Ser Tyr Phe Arg Gly Ile Pro His Ser Ala  
 165 170 175

Ser Pro Val Ser Pro Asp Gly Val Gln Ile Pro Leu Lys Glu Tyr Gly  
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Arg Ala Pro Val Pro Gly Pro Arg Arg Gly Lys Arg Ile Ala Ser Lys  
 195 200 205

Val Lys His Phe Ala Phe Asp Arg Lys Lys Arg His Tyr Gly Leu Gly  
 210 215 220

Val Val Gly Asn Trp Leu Asn Arg Ser Tyr Arg Arg Ser Ile Ser Ser  
 225 230 235 240

Thr Val Gln Arg Gln Leu Glu Ser Phe Asp Ser His Arg Pro Tyr Phe  
 245 250 255

Thr Tyr Trp Leu Thr Phe Val His Val Ile Ile Thr Leu Leu Val Ile  
 260 265 270

Cys Thr Tyr Gly Ile Ala Pro Val Gly Phe Ala Gln His Val Thr Thr  
 275 280 285

Gln Leu Val Leu Arg Asn Lys Gly Val Tyr Glu Ser Val Lys Tyr Ile  
 290 295 300

Gln Gln Glu Asn Phe Trp Val Gly Pro Ser Ser Ile Asp Leu Ile His  
 305 310 315 320

Leu Gly Ala Lys Phe Ser Pro Cys Ile Arg Lys Asp Gly Gln Ile Glu



Leu Cys Ser Gln Val His Cys Leu Asp Lys Val Cys Gly Leu Leu Pro

485

490

495

Phe Leu Asn Pro Glu Val Pro Asp Gln Phe Tyr Arg Leu Trp Leu Ser

500

505

510

Leu Phe Leu His Ala Gly Val Val His Cys Leu Val Ser Val Val Phe

515

520

525

Gln Met Thr Ile Leu Arg Asp Leu Glu Lys Leu Ala Gly Trp His Arg

530

535

540

Ile Ala Ile Ile Phe Ile Leu Ser Gly Ile Thr Gly Asn Leu Ala Ser

545

550

555

560

Thr Ile Phe Leu Pro Tyr Arg Ala Glu Val Gly Pro Ala Gly Ser Gln

565

570

575

Phe Gly Leu Leu Ala Cys Leu Phe Val Glu Leu Phe Gln Ser Trp Pro

580

585

590

Leu Leu Glu Arg Pro Trp Lys Ala Phe Leu Asn Leu Ser Thr Ile Val

595

600

605

Leu Phe Leu Phe Ile Cys Gly Leu Leu Pro Trp Ile Asp Asn Ile Ala

610

615

620

His Ile Phe Gly Phe Leu Ser Gly Leu Leu Leu Ala Phe Ala Phe Leu

625 630 635 640

Pro Tyr Ile Thr Phe Gly Thr Ser Asp Lys Tyr Arg Lys Arg Ala Leu

645 650 655

Ile Leu Val Ser Leu Leu Ala Phe Ala Gly Leu Phe Ala Ala Leu Val

660 665 670

Leu Trp Leu Tyr Ile Tyr Pro Ile Asn Trp Pro Trp Ile Glu His Leu

675 680 685

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690 695 700

DI Gln Val Leu His

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atacactagt gatc atg ttc agc cct gct tcc acc tgc ata gaa tct ttt 170

Met Phe Ser Pro Ala Ser Thr Cys Ile Glu Ser Phe

1 5 10

ctt ctc aga cag gga cag tgc agc ctc aac atc tcc tgg agt cta gaa 218

Leu Leu Arg Gln Gly Gln Cys Ser Leu Asn Ile Ser Trp Ser Leu Glu

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gct gtt tcc ttt ccc ctc ctt cct cct ctt gct cta gcc tta ata ctg 266

Ala Val Ser Phe Pro Leu Leu Pro Pro Leu Ala Leu Ala Leu Ile Leu

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gcc ttt tcc ctc cct gcc cca agt gaa gac agg gca ctc tgc gcc cac 314

Ala Phe Ser Leu Pro Ala Pro Ser Glu Asp Arg Ala Leu Cys Ala His

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cac atg cac agc tgt gca tgg aga cct gca ggt gca cgt gct gga aca 362

His Met His Ser Cys Ala Trp Arg Pro Ala Gly Ala Arg Ala Gly Thr

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70

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cgt gtg gtt ccc ccc tgg ccc agc ctc ctc tgc agt gcc cct ctc ccc 410

Arg Val Val Pro Pro Trp Pro Ser Leu Leu Cys Ser Ala Pro Leu Pro

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85

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tgc cca tcc tcc cca cgg aag cat gtg ctg gtc aca ctg gtt ctc cag 458

Cys Pro Ser Ser Pro Arg Lys His Val Leu Val Thr Leu Val Leu Gln

95

100

105

ggg tct gtg atg ggg ccc ctg ggg gtc agc ttc tgt ccc tct gcc ttc 506

Gly Ser Val Met Gly Pro Leu Gly Val Ser Phe Cys Pro Ser Ala Phe

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115

120



tca cct ctt tgt tcc ttt ctt ttc atg tat cca ttc agt tgatgtttat 555

Ser Pro Leu Cys Ser Phe Leu Phe Met Tyr Pro Phe Ser

125 130 135

tgagcaacta cagatgtcag cactgtgtta ggtgctgggg gccctgcgtg ggaagataaa 615

gttcctccct caaggactcc ccatccagct gggagacaga caactaacta cactgcaccc 675

tgcggtttgc aaggggctcc tgcttggtc 705

<210> 36

<211> 137

<212> PRT

<213> Homo sapiens

<400> 36

Met Phe Ser Pro Ala Ser Thr Cys Ile Glu Ser Phe Leu Leu Arg Gln

1 5 10 15

D1 Gly Gln Cys Ser Leu Asn Ile Ser Trp Ser Leu Glu Ala Val Ser Phe

20 25 30

Pro Leu Leu Pro Pro Leu Ala Leu Ala Leu Ile Leu Ala Phe Ser Leu

35 40 45

Pro Ala Pro Ser Glu Asp Arg Ala Leu Cys Ala His His Met His Ser

50 55 60

Cys Ala Trp Arg Pro Ala Gly Ala Arg Ala Gly Thr Arg Val Val Pro

65 70 75 80

Pro Trp Pro Ser Leu Leu Cys Ser Ala Pro Leu Pro Cys Pro Ser Ser

85

90

95

Pro Arg Lys His Val Leu Val Thr Leu Val Leu Gln Gly Ser Val Met

100

105

110

Gly Pro Leu Gly Val Ser Phe Cys Pro Ser Ala Phe Ser Pro Leu Cys

115

120

125

Ser Phe Leu Phe Met Tyr Pro Phe Ser

130

135

&lt;210&gt; 37

&lt;211&gt; 1149

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (389) .. (856)

&lt;400&gt; 37

gactcactat agggcgaatt gggctcttctt ccagaattct ggccatgggg atccagactt 60

actcactata gggctcgagc ggccgcccgg gcaggtctaa gcaaggggag ggattagagc 120

ctccttcttc tctgcccctc cccatgggtc tctagggggc tggcgcaggc agcagcagag 180

gcactctggg cagctgggtg agggcccatc tgggcaaggc cccagcgcc tgccttctct 240

cccggggccc tgtgggcaag cctcctgctt cactttcagg tttctcgaag tgccttcttg 300

ctcctgtctg tttccccatc ctgccagatt tctgtttctc ttgctgggct tttggcagta 360

gggggctgtg ttggtgggcc ctacgaag atg ctc agt gct cga gat cgc cgg 412

Met Leu Ser Ala Arg Asp Arg Arg

1

5

gac cgg cac cct gag gag ggg gta gtt gca gag ctc cag ggc ttc gcg 460

Asp Arg His Pro Glu Glu Gly Val Val Ala Glu Leu Gln Gly Phe Ala

10

15

20

gtg gac aag gcc ttc ctc acc tcc cac aag ggc atc ctg ctg gaa acc 508

Val Asp Lys Ala Phe Leu Thr Ser His Lys Gly Ile Leu Leu Glu Thr

25

30

35

40

gag ctg gcc ctg acc ctc atc atc ttc atc tgc ttc acg gcc tcc atc 556

Glu Leu Ala Leu Thr Leu Ile Ile Phe Ile Cys Phe Thr Ala Ser Ile

45

50

55

tot gcc tac atg gcc gcg gcg cta ctg gag ttc ttc atc aca ctt gcc 604

Ser Ala Tyr Met Ala Ala Ala Leu Leu Glu Phe Phe Ile Thr Leu Ala

60

65

70

ttc ctc ttc ctc tat gcc acc cag tac tac cag cgc ttc gac cga att 652

Phe Leu Phe Leu Tyr Ala Thr Gln Tyr Tyr Gln Arg Phe Asp Arg Ile

75

80

85

aac tgg ccc tgt ctg gac ttc ctg cgc tgt gtc agt gcc atc atc atc 700

Asn Trp Pro Cys Leu Asp Phe Leu Arg Cys Val Ser Ala Ile Ile Ile

90

95

100

ttc ctg gtg gtc tcc ttt gca gct gtg acc tcc cgg gac gga gct gcc 748

Phe Leu Val Val Ser Phe Ala Ala Val Thr Ser Arg Asp Gly Ala Ala

105

110

115

120

att gct gct ttt gtt ttt ggc atc atc ctg gtt tcc atc ttt gcc tat 796

Ile Ala Ala Phe Val Phe Gly Ile Ile Leu Val Ser Ile Phe Ala Tyr

125

130

135

gat gcc ttc aag atc tac cgg act gag atg gca ccc ggg gcc agc cag 844

Asp Ala Phe Lys Ile Tyr Arg Thr Glu Met Ala Pro Gly Ala Ser Gln

140

145

150

ggg gac cag cag tgactctggg gctacctggc tctaggccc agccagccag 896

Gly Asp Gln Gln

155

agaggacagt ggagcccaga cacgtctcct tgggattcac tagccccag cccgccaaac 956

cccccccaa cctacacag cagtctggcc tgagacgtca ctggggactt atctgtggag 1016

cctggtgctc caggatgtgg cttctcatga agctctggcc agaggagggg aacttattgg 1076

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aattcttaaa aaa

1149

<210> 38

<211> 156

<212> PRT

<213> Homo sapiens

<400> 38

Met Leu Ser Ala Arg Asp Arg Arg Asp Arg His Pro Glu Glu Gly Val

1

5

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15

Val Ala Glu Leu Gln Gly Phe Ala Val Asp Lys Ala Phe Leu Thr Ser

20

25

30

His Lys Gly Ile Leu Leu Glu Thr Glu Leu Ala Leu Thr Leu Ile Ile

35

40

45

Phe Ile Cys Phe Thr Ala Ser Ile Ser Ala Tyr Met Ala Ala Ala Leu

50

55

60

Leu Glu Phe Phe Ile Thr Leu Ala Phe Leu Phe Leu Tyr Ala Thr Gln

65

70

75

80

DI Tyr Tyr Gln Arg Phe Asp Arg Ile Asn Trp Pro Cys Leu Asp Phe Leu

85

90

95

Arg Cys Val Ser Ala Ile Ile Ile Phe Leu Val Val Ser Phe Ala Ala

100

105

110

Val Thr Ser Arg Asp Gly Ala Ala Ile Ala Ala Phe Val Phe Gly Ile

115

120

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Ile Leu Val Ser Ile Phe Ala Tyr Asp Ala Phe Lys Ile Tyr Arg Thr

130

135

140

Glu Met Ala Pro Gly Ala Ser Gln Gly Asp Gln Gln

145

150

155

<210> 39  
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 <213> Homo sapiens

<220>  
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 <222> (505) .. (1284)

<400> 39  
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tgcaggggtcc ctagaggccg gttcctggtc tgtgctgctc tcctggaagc catggtacag 180

gcagagctca gggcgatccc caggtgaggg cagcggctct gcttgggatt ccaccgcagt 240

acaaccgggt agatgcgggg tggagaagaa aggatgttgc ctgcactgct cgccaatagc 300

accctgagag gctacatttg cagaagcagc agcagcagaa gacacagcgc cgggccagga 360

ggcggctcga gctgttcgta aagtcgcccg acagcttttt ctccgtagta tgcgagttga 420

caaaacagcc agagaacagg gctccccatt acaatctttt cgagatcttt tcccttgcta 480

accggatctg atttgtgcga aaac atg cct tgc act tgt acc tgg agg aac 531

Met Pro Cys Thr Cys Thr Trp Arg Asn

1

5

tgg aga cag tgg att cga cct tta gta gcg gtc atc tac ctg gtg tca 579

Trp Arg Gln Trp Ile Arg Pro Leu Val Ala Val Ile Tyr Leu Val Ser

10

15

20

25

ata gtg gtt gcg gtt ccc cta tgc gtg tgg gaa tta cag aaa ctg gag 627

Ile Val Val Ala Val Pro Leu Cys Val Trp Glu Leu Gln Lys Leu Glu

30

35

40

gtt gga ata cac acc aag gct tgg ttt att gct gga atc ttt ttg ctg 675

Val Gly Ile His Thr Lys Ala Trp Phe Ile Ala Gly Ile Phe Leu Leu

45

50

55

ttg act att cct ata tca ctg tgg gtg ata ttg caa cac tta gtg cat 723

Leu Thr Ile Pro Ile Ser Leu Trp Val Ile Leu Gln His Leu Val His

60

65

70

tat aca caa cct gaa cta caa aaa cca ata ata agg att ctt tgg atg 771

Tyr Thr Gln Pro Glu Leu Gln Lys Pro Ile Ile Arg Ile Leu Trp Met

75

80

85

gta cct att tac agt tta gat agt tgg ata gct ttg aaa tat ccc gga 819

Val Pro Ile Tyr Ser Leu Asp Ser Trp Ile Ala Leu Lys Tyr Pro Gly

90

95

100

105

att gca ata tat gtg gat acc tgc aga gaa tgc tat gaa gct tat gta 867

Ile Ala Ile Tyr Val Asp Thr Cys Arg Glu Cys Tyr Glu Ala Tyr Val

110

115

120

att tac aac ttt atg gga ttc ctt acc aat tat cta act aac cgg tat 915

Ile Tyr Asn Phe Met Gly Phe Leu Thr Asn Tyr Leu Thr Asn Arg Tyr

125

130

135

cca aat ctg gta tta atc ctt gaa gcc aaa gat caa cag aaa cat ttc 963

Pro Asn Leu Val Leu Ile Leu Glu Ala Lys Asp Gln Gln Lys His Phe

140

145

150

cct cct tta tgt tgc tgt cca cca tgg gct atg gga gaa gta ttg ctg 1011

Pro Pro Leu Cys Cys Cys Pro Pro Trp Ala Met Gly Glu Val Leu Leu

155

160

165

ttt agg tgc aaa cta ggt gta tta cag tac aca gtt gtc aga cct ttc 1059

Phe Arg Cys Lys Leu Gly Val Leu Gln Tyr Thr Val Val Arg Pro Phe

170

175

180

185

acc acc atc gtt gct tta atc tgt gag ctg ctt ggt ata tat gac gaa 1107

Thr Thr Ile Val Ala Leu Ile Cys Glu Leu Leu Gly Ile Tyr Asp Glu

190

195

200

ggg aac ttt agc ttt tca aat gct tgg act tat ttg gtt ata ata aac 1155

Gly Asn Phe Ser Phe Ser Asn Ala Trp Thr Tyr Leu Val Ile Ile Asn

205

210

215

aac atg tca cag ttg ttt gcc atg tat tgt ctc ctg ctc ttt tat aaa 1203

Asn Met Ser Gln Leu Phe Ala Met Tyr Cys Leu Leu Leu Phe Tyr Lys

220

225

230

gta cta aaa gaa gaa ctg agc cca atc caa cct gtt ggc aaa ttt ctt 1251

Val Leu Lys Glu Glu Leu Ser Pro Ile Gln Pro Val Gly Lys Phe Leu

235

240

245



tgt gta aag ctg gtg gtt ttt gtt tct ttt tgg taagtgttac ttttttttaa 1304

Cys Val Lys Leu Val Val Phe Val Ser Phe Trp

250

255

260

atgttctcat tttttaagg gcagtaaaaa ccgttgatta aggaggattt ttaaacagtc 1364

ttaatgcgga agatagatta aaatgtctct acttctcttt ttaaaagtgc atcttttttag 1424

cccttctaca attttcaaaa gaaataatta gatggtcgct gtaacattta tatgaagaaa 1484

atagtttgag acaacctaaa tatgtcaata ctagaataat tattaaaata aatcatggcc 1544

ctgtcatata atagaatact atggagtttg gaagaaagca tgatgtagaa tatttaatta 1604

tatggga 1611

<210> 40

<211> 260

<212> PRT

<213> Homo sapiens

<400> 40

Met Pro Cys Thr Cys Thr Trp Arg Asn Trp Arg Gln Trp Ile Arg Pro

1

5

10

15

Leu Val Ala Val Ile Tyr Leu Val Ser Ile Val Val Ala Val Pro Leu

20

25

30

Cys Val Trp Glu Leu Gln Lys Leu Glu Val Gly Ile His Thr Lys Ala

35

40

45

Trp Phe Ile Ala Gly Ile Phe Leu Leu Leu Thr Ile Pro Ile Ser Leu

50                                      55                                      60  
 Trp Val Ile Leu Gln His Leu Val His Tyr Thr Gln Pro Glu Leu Gln  
 65                                      70                                      75                                      80  
 Lys Pro Ile Ile Arg Ile Leu Trp Met Val Pro Ile Tyr Ser Leu Asp  
                                     85                                      90                                      95  
 Ser Trp Ile Ala Leu Lys Tyr Pro Gly Ile Ala Ile Tyr Val Asp Thr  
                                     100                                      105                                      110  
 Cys Arg Glu Cys Tyr Glu Ala Tyr Val Ile Tyr Asn Phe Met Gly Phe  
                                     115                                      120                                      125  
 Leu Thr Asn Tyr Leu Thr Asn Arg Tyr Pro Asn Leu Val Leu Ile Leu  
                                     130                                      135                                      140  
 Glu Ala Lys Asp Gln Gln Lys His Phe Pro Pro Leu Cys Cys Cys Pro  
 145                                      150                                      155                                      160  
 Pro Trp Ala Met Gly Glu Val Leu Leu Phe Arg Cys Lys Leu Gly Val  
                                     165                                      170                                      175  
 Leu Gln Tyr Thr Val Val Arg Pro Phe Thr Thr Ile Val Ala Leu Ile  
                                     180                                      185                                      190  
 Cys Glu Leu Leu Gly Ile Tyr Asp Glu Gly Asn Phe Ser Phe Ser Asn  
                                     195                                      200                                      205

Ala Trp Thr Tyr Leu Val Ile Ile Asn Asn Met Ser Gln Leu Phe Ala

210

215

220

Met Tyr Cys Leu Leu Leu Phe Tyr Lys Val Leu Lys Glu Glu Leu Ser

225

230

235

240

Pro Ile Gln Pro Val Gly Lys Phe Leu Cys Val Lys Leu Val Val Phe

245

250

255

Val Ser Phe Trp

260

>D1  
<210> 41  
<211> 1918  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1082)..(1837)

<400> 41  
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agacaatttc acaaaggtgt ttaaaaccat cctttggttt ttgatcctga gtcagagacg 180

gacatgtgct tatgaaagaa ggtagagttt caacccttag gtaaccttaa aagagcagga 240

actatgttgt gtgtaagtca tgtgcagtat acaaacttga tattaaatga caaattggaa 300

caatctttct ctaggaatgc ctctctttca tagaggcatc acagtgagtc tcttaaagcc 360

ttgatctagg tgtgttacag atgggcttac agagtatgaa tgcacgataa gaaggaaatt 420

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gtagttccaa ggagaagtca gagttccacc tttggagtct ttccttctga ttcacgattt 720

tctttcaaca attttccact taggaatcca tcacaaaagt tttgcacatg ctctacggaa 780

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ggcagttgag actccttttag tttgaaaaat gatatcacct tcccattttc tttcatacca 900

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tgcattgttct ctccatactc tggggaggcc ttgttcatta tcaggaggag atgattctga 1020

attacgctgt tgaataaccc aatcacagtc acagggttgg agcaggagca ggagagggac 1080

a atg gaa gct gcc ccg tcc agg ttc atg ttc ctc tta ttt ctc ctc acg 1129

Met Glu Ala Ala Pro Ser Arg Phe Met Phe Leu Leu Phe Leu Leu Thr

1

5

10

15

tgt gag ctg gct gca gaa gtt gct gca gaa gtt gag aaa tcc tca gat 1177  
Cys Glu Leu Ala Ala Glu Val Ala Ala Glu Val Glu Lys Ser Ser Asp

20

25

30

ggc cct ggt gct gcc cag gaa ccc acg tgg ctc aca gat gtc cca gct 1225  
Gly Pro Gly Ala Ala Gln Glu Pro Thr Trp Leu Thr Asp Val Pro Ala

35

40

45

gcc atg gaa ttc att gct gcc act gag gtg gct gtc ata ggc ttc ttc 1273  
Ala Met Glu Phe Ile Ala Ala Thr Glu Val Ala Val Ile Gly Phe Phe

50

55

60

cag gat tta gaa ata cca gca gtg ccc ata ctc cat agc atg gtg caa 1321  
Gln Asp Leu Glu Ile Pro Ala Val Pro Ile Leu His Ser Met Val Gln

65

70

75

80

aaa ttc cca ggc gtg tca ttt ggg atc agc act gat tct gag gtt ctg 1369  
Lys Phe Pro Gly Val Ser Phe Gly Ile Ser Thr Asp Ser Glu Val Leu

85

90

95

aca cac tac aac atc act ggg aac acc atc tgc ctc ttt cgc ctg gta 1417  
Thr His Tyr Asn Ile Thr Gly Asn Thr Ile Cys Leu Phe Arg Leu Val

100

105

110

gac aat gaa caa ctg aat tta gag gac gaa gac att gaa agc att gat 1465  
Asp Asn Glu Gln Leu Asn Leu Glu Asp Glu Asp Ile Glu Ser Ile Asp

115

120

125

gcc acc aaa ttg agc cgt ttc att gag atc aac agc ctc cac atg gtg 1513

Ala Thr Lys Leu Ser Arg Phe Ile Glu Ile Asn Ser Leu His Met Val

130

135

140

aca gag tac aac cct gtg act gtg att ggg tta ttc aac agc gta att 1561

Thr Glu Tyr Asn Pro Val Thr Val Ile Gly Leu Phe Asn Ser Val Ile

145

150

155

160

cag att cat ctc ctc ctg ata atg aac aag gcc tcc cca gag tat gaa 1609

Gln Ile His Leu Leu Leu Ile Met Asn Lys Ala Ser Pro Glu Tyr Glu

165

170

175

gag aac atg cac aga tac cag aag gca gcc aag ctc ttc cag ggg aag 1657

Glu Asn Met His Arg Tyr Gln Lys Ala Ala Lys Leu Phe Gln Gly Lys

180

185

190

att ctc ttt att ctg gtg gac agt ggt atg aaa gaa aat ggg aag gtg 1705

Ile Leu Phe Ile Leu Val Asp Ser Gly Met Lys Glu Asn Gly Lys Val

195

200

205

ata tca ttt ttc aaa cta aag gag tct caa ctg cca gct ttg gca att 1753

Ile Ser Phe Phe Lys Leu Lys Glu Ser Gln Leu Pro Ala Leu Ala Ile

210

215

220

tac cag act cta gat gac gag tgg gat aca ctg ccc aca gca gaa gtt 1801

Tyr Gln Thr Leu Asp Asp Glu Trp Asp Thr Leu Pro Thr Ala Glu Val

225

230

235

240

tcc gta gag cat gtg caa aac ttt tgt gat gga ttc taagtggcaa 1847

Ser Val Glu His Val Gln Asn Phe Cys Asp Gly Phe

245

250

attgttgaaa gaaaatcgtg aatcaggaag ggggaaaagg gactcccaa aaggggttg 1907

gggaaaaacc t

1918

<210> 42

<211> 252

<212> PRT

<213> Homo sapiens

<400> 42

Met Glu Ala Ala Pro Ser Arg Phe Met Phe Leu Leu Phe Leu Leu Thr

1

5

10

15

Cys Glu Leu Ala Ala Glu Val Ala Ala Glu Val Glu Lys Ser Ser Asp

20

25

30

Gly Pro Gly Ala Ala Gln Glu Pro Thr Trp Leu Thr Asp Val Pro Ala

35

40

45

Ala Met Glu Phe Ile Ala Ala Thr Glu Val Ala Val Ile Gly Phe Phe

50

55

60

Gln Asp Leu Glu Ile Pro Ala Val Pro Ile Leu His Ser Met Val Gln

65

70

75

80

Lys Phe Pro Gly Val Ser Phe Gly Ile Ser Thr Asp Ser Glu Val Leu

85

90

95

Thr His Tyr Asn Ile Thr Gly Asn Thr Ile Cys Leu Phe Arg Leu Val

100 105 110  
 Asp Asn Glu Gln Leu Asn Leu Glu Asp Glu Asp Ile Glu Ser Ile Asp  
 115 120 125  
 Ala Thr Lys Leu Ser Arg Phe Ile Glu Ile Asn Ser Leu His Met Val  
 130 135 140  
 Thr Glu Tyr Asn Pro Val Thr Val Ile Gly Leu Phe Asn Ser Val Ile  
 145 150 155 160  
 Gln Ile His Leu Leu Leu Ile Met Asn Lys Ala Ser Pro Glu Tyr Glu  
 165 170 175  
 Glu Asn Met His Arg Tyr Gln Lys Ala Ala Lys Leu Phe Gln Gly Lys  
 180 185 190  
 Ile Leu Phe Ile Leu Val Asp Ser Gly Met Lys Glu Asn Gly Lys Val  
 195 200 205  
 Ile Ser Phe Phe Lys Leu Lys Glu Ser Gln Leu Pro Ala Leu Ala Ile  
 210 215 220  
 Tyr Gln Thr Leu Asp Asp Glu Trp Asp Thr Leu Pro Thr Ala Glu Val  
 225 230 235 240  
 Ser Val Glu His Val Gln Asn Phe Cys Asp Gly Phe  
 245 250



<210> 43  
<211> 1914  
<212> DNA  
<213> Homo sapiens

<220>

<223> The open reading frame was identified  
beginning with an ATG initiation codon at nucleotides 1078-1080  
and ending with a stop codon at nucleotides 1834-1836 on the  
reverse complement of SEQ ID NO:43.

<400> 43

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ttctgctgtg ggcagtgtat ccactcgtc atctagagtc tggtaaattg ccaaagctgg 180

cagttgagac tcctttagtt tgaaaaatga tatcaccttc ccattttctt tcataccact 240

gtccaccaga ataaagagaa tcttccctg gaagagcttg gctgccttct ggtatctgtg 300

catgtttctt tcatactctg gggaggcctt gttcattatc aggaggagat gaatctgaat 360

tacgctgttg aataacccaa tcacagtcac aggggtgtac tctgtcacca tgtggaggct 420

gttgatctca atgaaacggc tcaatttggt ggcacatg ctttcaatgt cttcgtcctc 480

taaattcagt tggtcattgt ctaccaggcg aaagaggcag atgggtgtcc cagtgatgtt 540

gtagtgtgtc agaacctcag aatcagtgtc gatcccaaat gacacgctg ggaatttttg 600

caccatgcta tggagtatgg gcaactgtgt tatttctaaa tcttgaaga agcctatgac 660

agccacctca gtggcagcaa tgaattccat ggcagctggg acatctgtga gccacgtggg 720  
 ttctctgggca gcaccaggac catctgagga tttctcaact tctgcagcaa cttctgcage 780  
 cagctcacac gtgaggagaa ataagaggaa catgaacctg gacggggcag cttccattgt 840  
 ccctctcctg ctctgctcc aacctgtga ctgtgattgg gttattcaac agcgtaattc 900  
 agaatcatct cctctgata atgaacaagg cctccccaga gtatggagag aacatgcaca 960  
 gataccagaa ggcagccaag ctcttcagg ggaagattct ctttattctg gtggacagtg 1020  
 gtatgaaaga aaatgggaag gtgatatcat ttttcaaact aaaggagtct caactgccag 1080  
 D1 ctttggcaat ttaccagact ctagatgacg agtgggatac actgccaca gcagaagttt 1140  
 ccgtagagca tgtgcaaaac ttttgtgatg gattcctaag tggaaaattg ttgaaagaaa 1200  
 atcgtgaatc agaaggaaag actccaaagg tggaactctg acttctcctt ggaactacat 1260  
 atggccaagt atctacttta tgcaaagtaa aaaggcacia ctcaaattct agagacacta 1320  
 aacaacagga tcactaggcc tgccaaccac acacacacgc apgtgcacac acgcacgcac 1380  
 gcgtgcacac acacacgcgc acacacacac acacacacag agcttcattt cctgtcttaa 1440  
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 aatctcgttt tctcttcttc cttcttttaa atttcatatc ctactcctt atccaatttc 1500  
 cttcttatcg tgcattcata ctctgtaagc ccatctgtaa cacacctaga tcaaggcttt 1560

aagagactca ctgtgatgcc tctatgaaag agaggcattc ctagagaaag attgttccaa 1620

tttgtcattt aatatcaagt ttgtatactg cacatgactt acacacaaca tagttcctgc 1680

tcttttaagg ttacctaagg gttgaaactc taccttcttt cataagcaca tgtccgtctc 1740

tgactcagga tcaaaaacca aaggatggtt ttaaacaact ttgtgaaatt gtctttttgc 1800

cagaagttaa aggctgtctc caagtccttg aactcagcag aaatagacca tgtgaaactc 1860

catgcttggt tagcatctcc aactccctat gtaaataaac aacctgcata ataa 1914

<210> 44  
<211> 252  
<212> PRT  
<214> Homo sapiens

<400> 44  
Met Glu Ala Ala Pro Ser Arg Phe Met Phe Leu Leu Phe Leu Leu Thr

1 5 10 15

Cys Glu Leu Ala Ala Glu Val Ala Ala Glu Val Glu Lys Ser Ser Asp

20 25 30

Gly Pro Gly Ala Ala Gln Glu Pro Thr Trp Leu Thr Asp Val Pro Ala

35 40 45

Ala Met Glu Phe Ile Ala Ala Thr Glu Val Ala Val Ile Gly Phe Phe

50 55 60

Gln Asp Leu Glu Ile Pro Ala Val Pro Ile Leu His Ser Met Val Gln  
65 70 75 80

Lys Phe Pro Gly Val Ser Phe Gly Ile Ser Thr Asp Ser Glu Val Leu  
85 90 95

Thr His Tyr Asn Ile Thr Gly Asn Thr Ile Cys Leu Phe Arg Leu Val  
100 105 110

Asp Asn Glu Gln Leu Asn Leu Glu Asp Glu Asp Ile Glu Ser Ile Asp  
115 120 125

Ala Thr Lys Leu Ser Arg Phe Ile Glu Ile Asn Ser Leu His Met Val  
130 135 140

Thr Glu Tyr Asn Pro Val Thr Val Ile Gly Leu Phe Asn Ser Val Ile  
145 150 155 160

Gln Ile His Leu Leu Leu Ile Met Asn Lys Ala Ser Pro Glu Tyr Glu  
165 170 175

Glu Asn Met His Arg Tyr Gln Lys Ala Ala Lys Leu Phe Gln Gly Lys  
180 185 190

Ile Leu Phe Ile Leu Val Asp Ser Gly Met Lys Glu Asn Gly Lys Val  
195 200 205

Ile Ser Phe Phe Lys Leu Lys Glu Ser Gln Leu Pro Ala Leu Ala Ile  
210 215 220

Tyr Gln Thr Leu Asp Asp Glu Trp Asp Thr Leu Pro Thr Ala Glu Val

225

230

235

240

Ser Val Glu His Val Gln Asn Phe Cys Asp Gly Phe

245

250

<210> 45

<211> 3082

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (460) .. (2394)

<220>

<221> variation

<222> (3082)

<223> where n can be any nucleotide

<400> 45

gagctcggat ccactagtaa cggccgccag tgtgotggaa ttcggttta cgactcacta 60

tagggctcga gcggctgccc gggcaggtca catttgttg cctgattccc agctctctta 120

ggataggtct tcttgggaaa tgctttcatt tctaatacaa agaaaattgt gcaggcagcc 180

acgttaagat gtttttctga caataatcgg ccaagatatt ccactgtgtc tcgaggccac 240

tctgaaaag aggaagtttg ttttctgtt gttctgacag gaagaggtgg atctacttca 300

tcaacatgca gtaccaaatt gttaggatac aagctaaaaa ggagggtggt tttttccact 360

ttgttgaatt gttcctatac tcaaaattgc accaagacac cttgtctccc aaatgcaaaa 420

tgtgaaatac gcaatggaat tgaagcctgc tattgcaac atg gga ttt tca gga 474

Met Gly Phe Ser Gly

1 5

aat ggt gtc aca att tgt gaa gat gat aat gaa tgt gga aat tta act 522

Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu Cys Gly Asn Leu Thr

10 15 20

cag tcc tgt ggc gaa aat gct aat tgc act aac aca gaa gga agt tat 570

Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn Thr Glu Gly Ser Tyr

25 30 35

71 tat tgt atg tgt gta cct ggc ttc aga tcc agc agt aac caa gac agg 618

Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser Ser Asn Gln Asp Arg

40 45 50

ttt atc act aat gat gga acc gtc tgt ata gaa aat gtg aat gca aac 666

Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu Asn Val Asn Ala Asn

55 60 65

tgc cat tta gat aat gtc tgt ata gct gca aat att aat aaa act tta 714

Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn Ile Asn Lys Thr Leu

70 75 80 85

aca aaa atc aga tcc ata aaa gaa cct gtg gct ttg cta caa gaa gtc 762

Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala Leu Leu Gln Glu Val

90 95 100

tat aga aat tct gtg aca gat ctt tca cca aca gat ata att gca tat 810  
Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr Asp Ile Ile Ala Tyr

105

110

115

ata gaa ata tta gct gaa tca tct tca tta cta ggt tac aag aac aac 858  
Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu Gly Tyr Lys Asn Asn

120

125

130

act atc tca gcc aag gac acc ctt tct aac tca act ctt act gaa ttt 906  
Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser Thr Leu Thr Glu Phe

135

140

145

DI gta aaa acc gtg aat aat ttt gtt caa agg gat aca ttt gta gtt tgg 954  
Val Lys Thr Val Asn Asn Phe Val Gln Arg Asp Thr Phe Val Val Trp

150

155

160

165

gac aag tta tct gtg aat cat agg aga aca cat ctt aca aaa ctc atg 1002  
Asp Lys Leu Ser Val Asn His Arg Arg Thr His Leu Thr Lys Leu Met

170

175

180

cac act gtt gaa caa gct act tta agg ata tcc cag agc ttc caa aag 1050  
His Thr Val Glu Gln Ala Thr Leu Arg Ile Ser Gln Ser Phe Gln Lys

185

190

195

acc aca gag ttt gat aca aat tca acg gat ata gct ctc aaa gtt ttc 1098  
Thr Thr Glu Phe Asp Thr Asn Ser Thr Asp Ile Ala Leu Lys Val Phe

200

205

210

ttt ttt gat tca tat aac atg aaa cat att cat cct cat atg aat atg 1146

Phe Phe Asp Ser Tyr Asn Met Lys His Ile His Pro His Met Asn Met

215

220

225

gat gga gac tac ata aat ata ttt cca aag aga aaa gct gca tat gat 1194

Asp Gly Asp Tyr Ile Asn Ile Phe Pro Lys Arg Lys Ala Ala Tyr Asp

230

235

240

245

tca aat ggc aat gtt gca gtt gca ttt gta tat tat aag agt att ggt 1242

Ser Asn Gly Asn Val Ala Val Ala Phe Val Tyr Tyr Lys Ser Ile Gly

250

255

260

D1 cct ttg ctt tca tca tct gac aac ttc tta ttg aaa cct caa aat tat 1290

Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu Lys Pro Gln Asn Tyr

265

270

275

gat aat tct gaa gag gag gaa aga gtc ata tct tca gta att tca gtc 1338

Asp Asn Ser Glu Glu Glu Glu Arg Val Ile Ser Ser Val Ile Ser Val

280

285

290

tca atg agc tca aac cca ccc aca tta tat gaa ctt gaa aaa ata aca 1386

Ser Met Ser Ser Asn Pro Pro Thr Leu Tyr Glu Leu Glu Lys Ile Thr

295

300

305

ttt aca tta agt cat cga aag gtc aca gat agg tat agg agt cta tgt 1434

Phe Thr Leu Ser His Arg Lys Val Thr Asp Arg Tyr Arg Ser Leu Cys

310

315

320

325

gca ttt tgg aat tac tca cct gat acc atg aat ggc agc tgg tct tca 1482



Ala Phe Trp Asn Tyr Ser Pro Asp Thr Met Asn Gly Ser Trp Ser Ser

330

335

340

gag ggc tgt gag ctg aca tac tca aat gag acc cac acc tca tgc cgc 1530

Glu Gly Cys Glu Leu Thr Tyr Ser Asn Glu Thr His Thr Ser Cys Arg

345

350

355

tgt aat cac ctg aca cat ttt gca att ttg atg tcc tct ggt cct tcc 1578

Cys Asn His Leu Thr His Phe Ala Ile Leu Met Ser Ser Gly Pro Ser

360

365

370

att ggt att aaa gat tat aat att ctt aca agg atc act caa cta gga 1626

Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg Ile Thr Gln Leu Gly

375

380

385

ata att att tca ctg att tgt ctt gcc ata tgc att ttt acc ttc tgg 1674

Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Cys Ile Phe Thr Phe Trp

390

395

400

405

ttc ttc agt gaa att caa agc acc agg aca aca att cac aaa aat ctt 1722

Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr Ile His Lys Asn Leu

410

415

420

tgc tgt agc cta ttt ctt gct gaa ctt gtt ttt ctt gtt ggg atc aat 1770

Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu Val Gly Ile Asn

425

430

435

aca aat act aat aag ctc ttc tgt tca atc att gcc gga ctg cta cac 1818

Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile Ala Gly Leu Leu His

440

445

450

tac ttc ttt tta gct gct ttt gca tgg atg tgc att gaa ggc ata cat 1866

Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile Glu Gly Ile His

455

460

465

ctc tat ctc att gtt gtg ggt gtc atc tac aac aag gga ttt ttg cac 1914

Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys Gly Phe Leu His

470

475

480

485

aag aat ttt tat atc ttt ggc tat cta agc cca gcc gtg gta gtt gga 1962

Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala Val Val Val Gly

490

495

500

ttt tcg gca gca cta gga tac aga tat tat ggc aca acc aaa gta tgt 2010

Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly Thr Thr Lys Val Cys

505

510

515

tgg ctt agc acc gaa aac aac ttt att tgg agt ttt ata gga cca gca 2058

Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe Ile Gly Pro Ala

520

525

530

tgc cta atc att ctt gtt aat ctc ttg gct ttt gga gtc atc ata tac 2106

Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly Val Ile Ile Tyr

535

540

545

aaa gtt ttt cgt cac act gca ggg ttg aaa cca gaa gtt agt tgc ttt 2154

Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu Val Ser Cys Phe

550

555

560

565

gag aac ata agg tct tgt gca aga gga gcc ctc gct ctt ctg ttc ctt 2202

Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala Leu Leu Phe Leu

570

575

580

ctc ggc acc acc tgg atc ttt ggg gtt ctc cat gtt gtg cac gca tca 2250

Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val Val His Ala Ser

585

590

595

gtg gtt aca gct tac ctc ttc aca gtc agc aat gct ttc cag ggg atg 2298

Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala Phe Gln Gly Met

600

605

610

ttc att ttt tta ttc ctg tgt gtt tta tct aga aag att caa gaa gaa 2346

Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys Ile Gln Glu Glu

615

620

625

tat tac aga ttg ttc aaa aat gtc ccc tgt tgt ttt gga tgt tta agg 2394

Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe Gly Cys Leu Arg

630

635

640

645

taaacaataga gaatggtgga taattacaac tgcacaaaaa taaaaattcc aagctgtgga 2454

tgaccaatgt ataaaaatga ctcacaaat tatccaatta ttaactacta gacaaaaagt 2514

atattaaatc agtttttctg tttatgctat aggaactgta gataataagg taaaattatg 2574

tatcatatag atatactatg tttttctatg tgaatatgtt ctgtcaaaaa tagtattgca 2634

gatatttgga aagtaattgg tttctcagga gtgatatcac tgcaccaag gaaagatttt 2694

ctttctaaca cgagaagtat atgaatgtcc tgaaggaaac cactggcttg atatttctgt 2754

gactcgtggt gcctttgaaa ctagtccct accacctgg taatgagctc cattacagaa 2814

agtggaacat aagagaatga aggggcagaa tatcaaacag tgaaaaggga atgataagat 2874

gtattttgaa tgaactgttt tttctgtaga ctagctgaga aattgttgac ataaaataaa 2934

gaattgaaga aacacatttt accattttgt gaattgttct gaacttaa atgtccactaaa 2994

acaacttaga cttctgtttg ctaaactctgt ttctttttct aatattctaa aaaaaaaaaa 3054

aaggtttacc tccacaaatt gaaaaaan 3082

<210> 46  
<211> 645  
<212> PRT  
<213> Homo sapiens

<400> 46  
Met Gly Phe Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu

1 5 10 15

Cys Gly Asn Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn

20 25 30

Thr Glu Gly Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser

35 40 45

Ser Asn Gln Asp Arg Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu  
 50 55 60

Asn Val Asn Ala Asn Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn  
 65 70 75 80

Ile Asn Lys Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala  
 85 90 95

Leu Leu Gln Glu Val Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr  
 100 105 110

Asp Ile Ile Ala Tyr Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu  
 115 120 125

Gly Tyr Lys Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser  
 130 135 140

Thr Leu Thr Glu Phe Val Lys Thr Val Asn Asn Phe Val Gln Arg Asp  
 145 150 155 160

Thr Phe Val Val Trp Asp Lys Leu Ser Val Asn His Arg Arg Thr His  
 165 170 175

Leu Thr Lys Leu Met His Thr Val Glu Gln Ala Thr Leu Arg Ile Ser  
 180 185 190

Gln Ser Phe Gln Lys Thr Thr Glu Phe Asp Thr Asn Ser Thr Asp Ile

DI

195                      200                      205  
 Ala Leu Lys Val Phe Phe Phe Asp Ser Tyr Asn Met Lys His Ile His  
 210                      215                      220  
 Pro His Met Asn Met Asp Gly Asp Tyr Ile Asn Ile Phe Pro Lys Arg  
 225                      230                      235                      240  
 Lys Ala Ala Tyr Asp Ser Asn Gly Asn Val Ala Val Ala Phe Val Tyr  
 245                      250                      255  
 Tyr Lys Ser Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu  
 260                      265                      270  
 Lys Pro Gln Asn Tyr Asp Asn Ser Glu Glu Glu Glu Arg Val Ile Ser  
 275                      280                      285  
 Ser Val Ile Ser Val Ser Met Ser Ser Asn Pro Pro Thr Leu Tyr Glu  
 290                      295                      300  
 Leu Glu Lys Ile Thr Phe Thr Leu Ser His Arg Lys Val Thr Asp Arg  
 305                      310                      315                      320  
 Tyr Arg Ser Leu Cys Ala Phe Trp Asn Tyr Ser Pro Asp Thr Met Asn  
 325                      330                      335  
 Gly Ser Trp Ser Ser Glu Gly Cys Glu Leu Thr Tyr Ser Asn Glu Thr  
 340                      345                      350

His Thr Ser Cys Arg Cys Asn His Leu Thr His Phe Ala Ile Leu Met

355

360

365

Ser Ser Gly Pro Ser Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg

370

375

380

Ile Thr Gln Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Cys

385

390

395

400

Ile Phe Thr Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr

405

410

415

Ile His Lys Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe

420

425

430

Leu Val Gly Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile

435

440

445

Ala Gly Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys

450

455

460

Ile Glu Gly Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn

465

470

475

480

Lys Gly Phe Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro

485

490

495

Ala Val Val Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly

500                      505                      510  
 Thr Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser  
 515                      520                      525  
 Phe Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe  
 530                      535                      540  
 Gly Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro  
 545                      550                      555                      560  
 D) Glu Val Ser Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu  
 565                      570                      575  
 Ala Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His  
 580                      585                      590  
 Val Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn  
 595                      600                      605  
 Ala Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg  
 610                      615                      620  
 Lys Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys  
 625                      630                      635                      640  
 Phe Gly Cys Leu Arg  
 645



<210> 47  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 47  
aaaaaggagg agtcaaacgt gtct

24

<210> 48  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 48  
ggtcaagcgc agctttgc

18

DI  
<210> 49  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 49  
cccatcgacc acatcctcct ccag

24

<210> 50  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 50  
taaagagaat cttcccctgg aagag

25

<210> 51  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically synthesized

<400> 51  
ggcctcccca gagtatgga

19

<210> 52  
<211> 27  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Description of Artificial Sequence: chemically synthesized

<400> 52  
catgcacaga taccagaagg cagccaa

27

<210> 53  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically synthesized

<400> 53  
ggatgcatgc tccaaagaag a

21

<210> 54  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically synthesized

<400> 54  
ctcaccact gctgtctcca

20

<210> 55  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically synthesized

<400> 55  
ctgcccaggt ggccgtcact c 21

<210> 56  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 56  
gctccccaat ctggtctcct ac 22

<210> 57  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

D) <400> 57  
gatgggcttg aactggaaag ag 22

<210> 58  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 58  
ctctctgtgt gccacccatg ctgg 24

<210> 59  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 59  
cgcacagtca catggtcga 19

<210> 60  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 60  
cagggcgacg ttgtgacag

19

<210> 61  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 61  
tagtttccga agccccagta tcccacc

27

DI  
<210> 62  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 62  
gaacgccgga gcatacaga

19

<210> 63  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 63  
gatgccacag gcccaca

17

<210> 64  
<211> 27  
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 64

ccaggtactg cacaaacacg gcttcat

27

<210> 65

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 65

ccaggtactg cacaaacacg gcttcat

27

<210> 66

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 66

ctgggacatt tttctgagcc tt

22

<210> 67

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 67

ccctggcacc gtgtccgctt

20

<210> 68

<211> 23

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: chemically synthesized  
  
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 aaatcgcaag acattcactg tca 23  
  
 <210> 69  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: chemically synthesized  
  
 <400> 69  
 ccgccactcc atcatcact 19  
  
 <210> 70  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: chemically synthesized  
  
 <400> 70  
 cagcacactg gacttccgag tggacc 26  
  
 <210> 71  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: chemically synthesized  
  
 <400> 71  
 gcagtacaac cgggtagatg c 21  
  
 <210> 72  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: chemically synthesized

<400> 72  
gcctctcagg gtgctattgg 20

<210> 73  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 73  
gcctctcagg gtgctattgg 20

<210> 74  
<211> 55  
<212> DNA  
<213> Artificial Sequence

D1  
<220>  
<223> Description of Artificial Sequence: chemically  
synthesized

<400> 74  
ggtggctcgac ttaatggtga tggatgatgat ggtggctcgg ggatgtttcc ccggt 55

<210> 75  
<211> 305  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(303)

<400> 75  
atg cca cat ctg tat ata gat ggg gtt ttt cca ata cag ctg gtt cgt 48

Met Pro His Leu Tyr Ile Asp Gly Val Phe Pro Ile Gln Leu Val Arg

1 5 10 15

gat aaa ctg cat gaa act cct gcc gtc ctg cgc ctg ctg ggg cct cca 96

Asp Lys Leu His Glu Thr Pro Ala Val Leu Arg Leu Leu Gly Pro Pro

20 25 30

ggc aag gcc acg tgg ggt tgg ggg tgg ggc tgg tcc ttc tcc ctc ccc 144  
 Gly Lys Ala Thr Trp Gly Trp Gly Trp Gly Trp Ser Phe Ser Leu Pro

35

40

45

agg cct gtg ttc ttg ggg ctg ctc cca tgc aga cag gat cac cta aca 192  
 Arg Pro Val Phe Leu Gly Leu Leu Pro Cys Arg Gln Asp His Leu Thr

50

55

60

gag atg gaa gcc agg gca tgg atg ggg ctt tgg gtc ctc gag gtt gga 240  
 Glu Met Glu Ala Arg Ala Trp Met Gly Leu Trp Val Leu Glu Val Gly

65

70

75

80

ccc cag ctt ctt gcc acc ttc ccc tcc ggg cag tca gct ctc cat cca 288  
 Pro Gln Leu Leu Ala Thr Phe Pro Ser Gly Gln Ser Ala Leu His Pro

85

90

95

tcc ccc tct tta atc ta 305  
 Ser Pro Ser Leu Ile

100

<210> 76  
 <211> 101  
 <212> PRT  
 <213> Homo sapiens

<400> 76  
 Met Pro His Leu Tyr Ile Asp Gly Val Phe Pro Ile Gln Leu Val Arg

1

5

10

15

Asp Lys Leu His Glu Thr Pro Ala Val Leu Arg Leu Leu Gly Pro Pro

20

25

30



Gly Lys Ala Thr Trp Gly Trp Gly Trp Gly Trp Ser Phe Ser Leu Pro

35

40

45

Arg Pro Val Phe Leu Gly Leu Leu Pro Cys Arg Gln Asp His Leu Thr

50

55

60

Glu Met Glu Ala Arg Ala Trp Met Gly Leu Trp Val Leu Glu Val Gly

65

70

75

80

Pro Gln Leu Leu Ala Thr Phe Pro Ser Gly Gln Ser Ala Leu His Pro

85

90

95

Ser Pro Ser Leu Ile

100

<210> 77

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 77

ggatccgaag ttgagaaatc ctcagatggt

30

<210> 78

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 78

ctcgagaggg ttgtactctg tcaccatgtg

30

<210> 79

<211> 36  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: chemically  
           synthesized  
  
 <400> 79  
 ggatccacca tgcggacact cttcaacctc ctctgg 36

<210> 80  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: chemically  
           synthesized  
  
 <400> 80  
 ctcgaggagc aggtcgtaga agtagtccag g 31

<210> 81  
 <211> 46  
 <212> DNA  
 <213> Artificial Sequence  
  
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27

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33

DI <210> 85

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<223> Description of Artificial Sequence: chemically synthesized

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46

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<400> 88  
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